

DENON

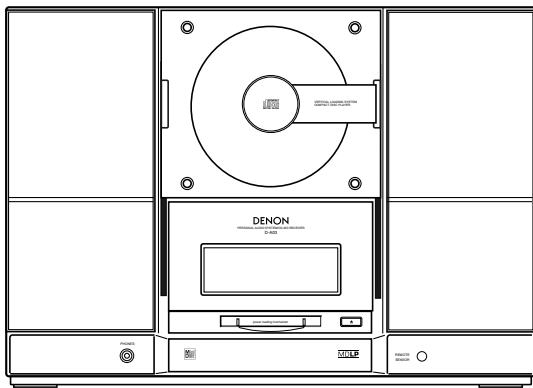
For Hong Kong,
U.S.A. and Canada model

Hi-Fi Personal Audio System

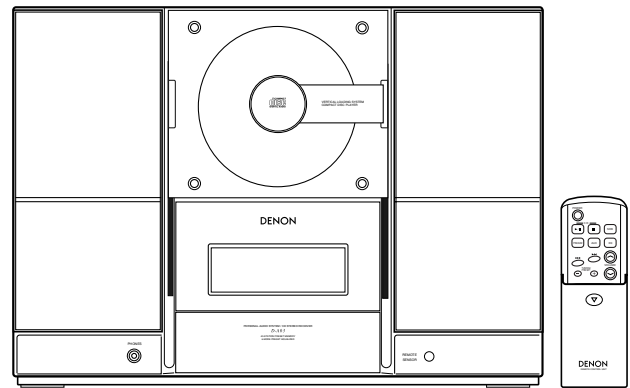
SERVICE MANUAL

MODEL D-A03

PERSONAL AUDIO SYSTEM



Hong Kong model



U.S.A. and Canada model

● Some illustrations using in this service manual are slightly different from the actual set.

NIPPON COLUMBIA CO., LTD.

14-14, AKASAKA 4-CHOME, MINATO-KU, TOKYO 107-8011 JAPAN
Telephone: 03 (3584) 8111

SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power cord is less than 460 kohms, the unit is defective.

SPECIFICATIONS (There is no MD Section in the U.S.A. and Canada model)

■ Amplifier Section

Practical maximum output:	Front speaker	11W (5.5W + 5.5W EIAJ)
Audio input/output jacks:	MONO output terminal, AUX input terminal, 3.5mm headphone jack	

■ Tuner Section

Receive frequency bands:	FM: 87.50MHz to 108.00MHz AM: 520kHz to 1710kHz (U.S.A. and Canada model) 522kHz to 1611kHz (Hong Kong model)
Receive sensitivity:	FM: 1.5 μ V/75 Ω /ohm AM: 20 μ V
FM stereo separation:	35 dB (1 kHz)

■ CD Player Section

Wow and flutter:	Below measurement limits ($\pm 0.001\%$ W peak)
Sampling frequency:	44.1kHz
Light source:	Semiconductor laser

■ MD Section (Hong Kong model)

Format:	MiniDisc digital audio system
Wow and flutter:	Below measurement limits ($\pm 0.001\%$ W peak)
Sampling frequency:	44.1kHz
Recording method:	Magnetic modulation overwrite method
Light source:	Semiconductor laser

■ Clock and Timer Section

Clock system:	Within one minute per month
Timers:	Everyday timer (One) Recording timer (One) Sleep timer (120 minutes, MAX)

■ Common Section

Power supply:	120V AC, 60Hz (U.S.A. and Canada model) 115/230V AC, 50/60Hz (Hong Kong model)
Power consumption:	29W Approximately 0.8W during standby
Maximum external dimensions:	390 (W) \times 280 (H) \times 165 (D) mm (Including feet, knobs and terminals)
Mass:	5.3kg

■ Remote Control (RC-910: Hong Kong model, RC-911: U.S.A. and Canada model)

Remote control system:	Infrared pulse
Power supply:	3V DC (using two R6P/AA type batteries)
Maximum external dimensions:	49 (W) \times 140 (H) \times 30 (D) mm
Mass:	120g (including batteries)

* For improvement purposes, specifications and functions are subject to change without advanced notice.

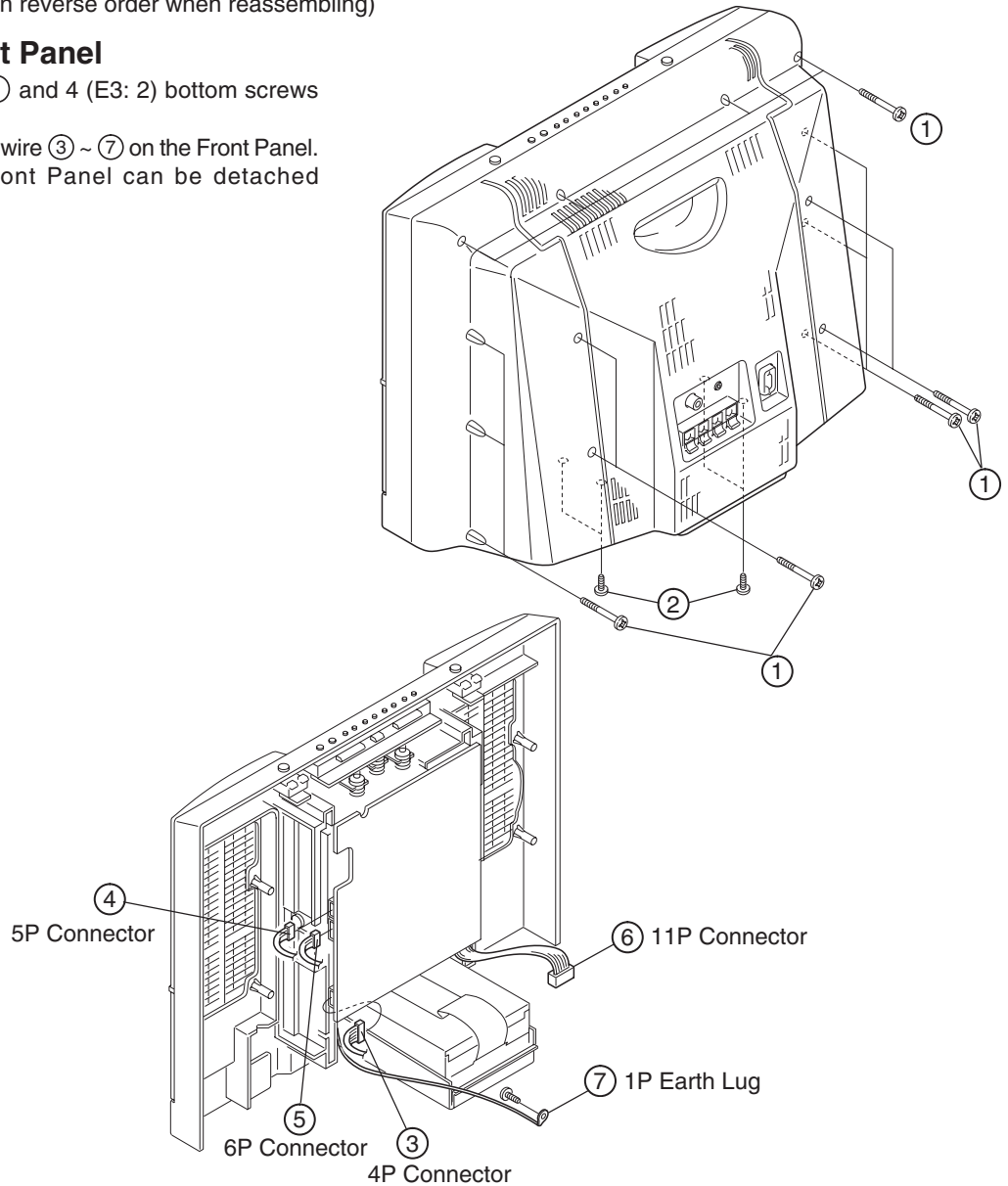
Licensed product based on U.S. and overseas patents of Dolby Laboratories Licensing Corporation.

DISASSEMBLY

(Follow the procedure below in reverse order when reassembling)

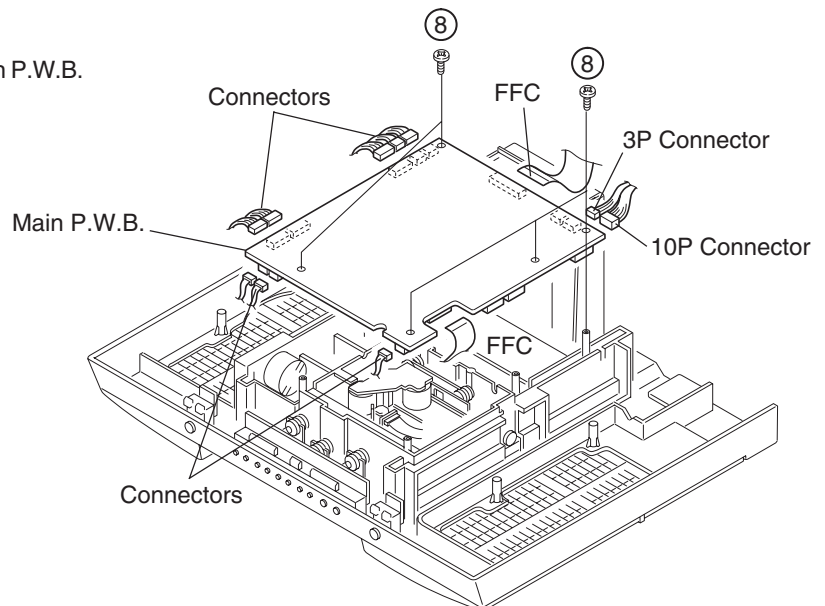
1. Rear Cover & Front Panel

- 1) Remove 14 rear screws ① and 4 (E3: 2) bottom screws ② on the Rear Cover.
- 2) Disconnect connectors and wire ③ ~ ⑦ on the Front Panel. The Rear Cover and Front Panel can be detached respectively.



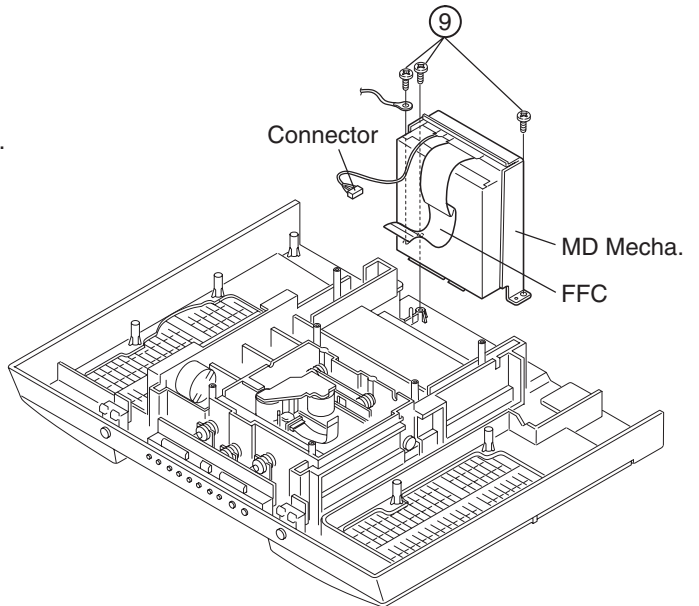
2. Main P.W.B.

- 1) Remove 5 screws ⑧.
- 2) Disconnect 2 FFCs, 10 connectors on the Main P.W.B.



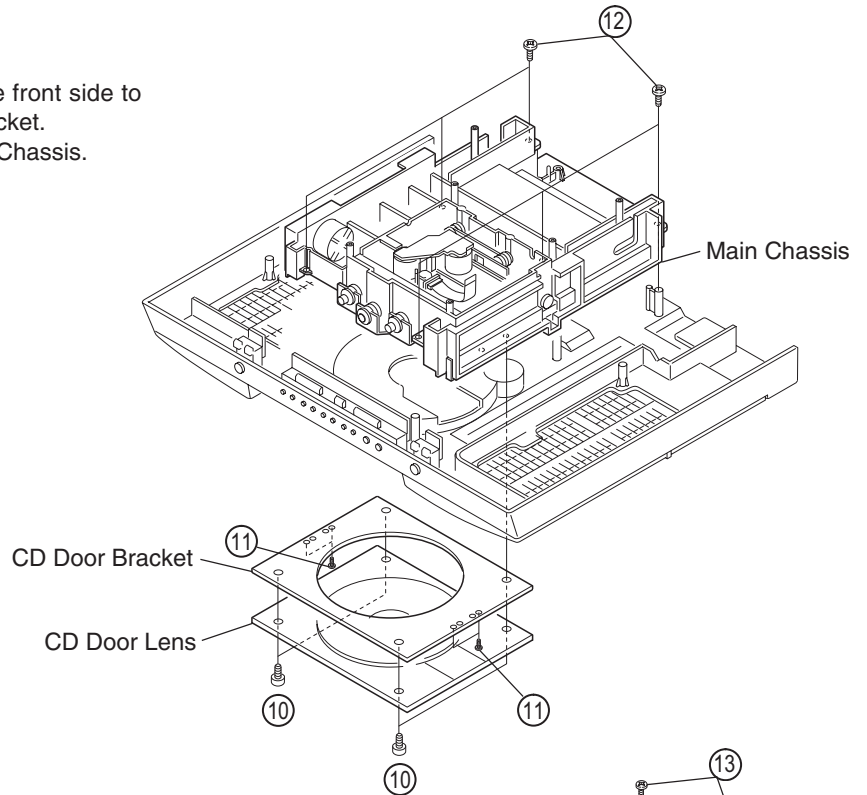
3. MD Mecha.

- 1) Remove 3 screws ⑨.
- 2) Disconnect 1 each FFC and connector on the Main P.W.B.



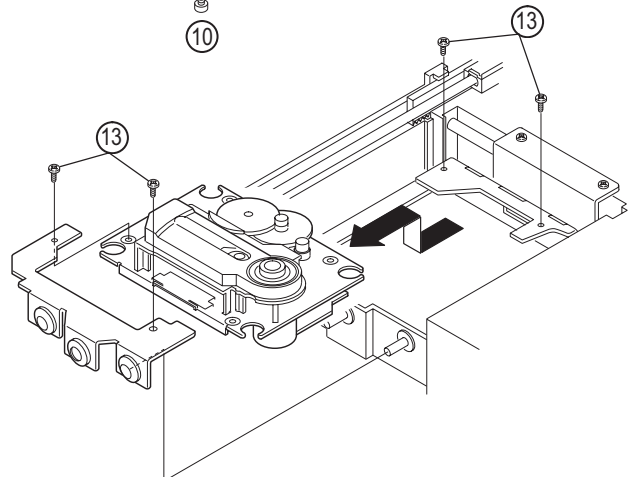
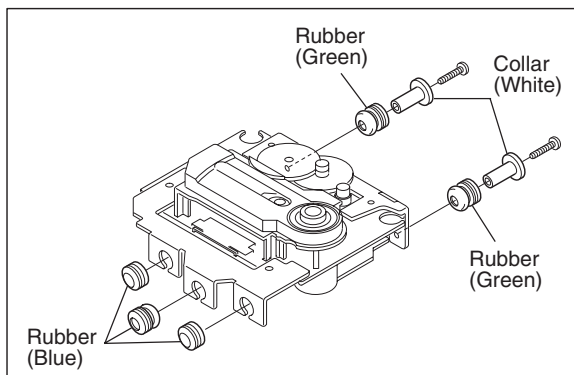
4. CD Mecha. Chassis

- 1) Remove 4 each screws ⑩ and ⑪ from the front side to detach the CD Door Lens and CD Door Bracket.
- 2) Remove 6 screws ⑫ and take off the Main Chassis.



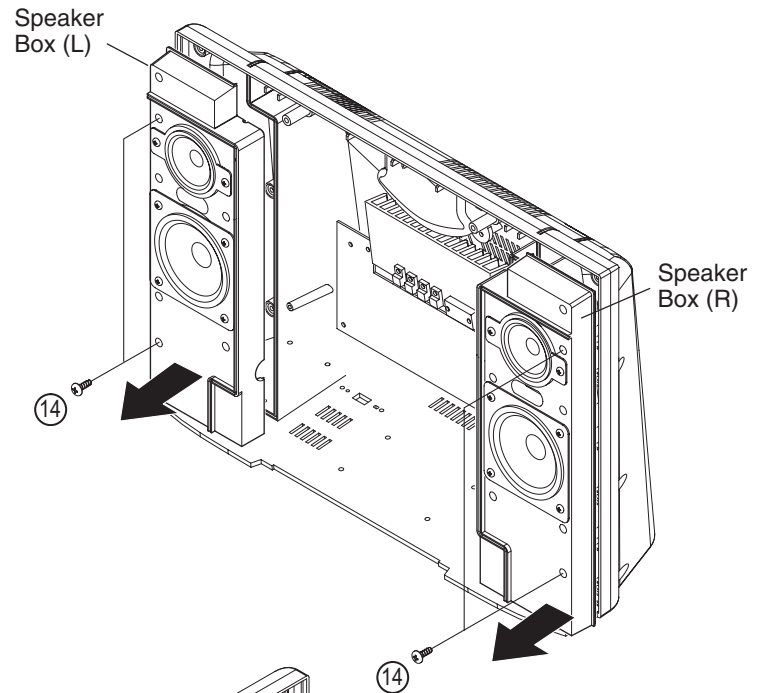
5. CD Mecha.

- 1) Remove 4 screws ⑬ fixing the Bracket.
- 2) Detach the CD Mecha. upward as shown to the arrow direction.



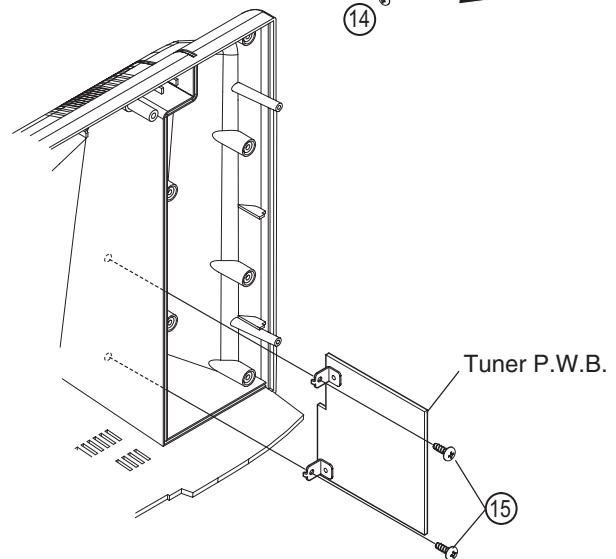
6. Speaker Box (L & R)

- 1) Remove 4 screws (14).
- 2) Disconnect 2 connectors.



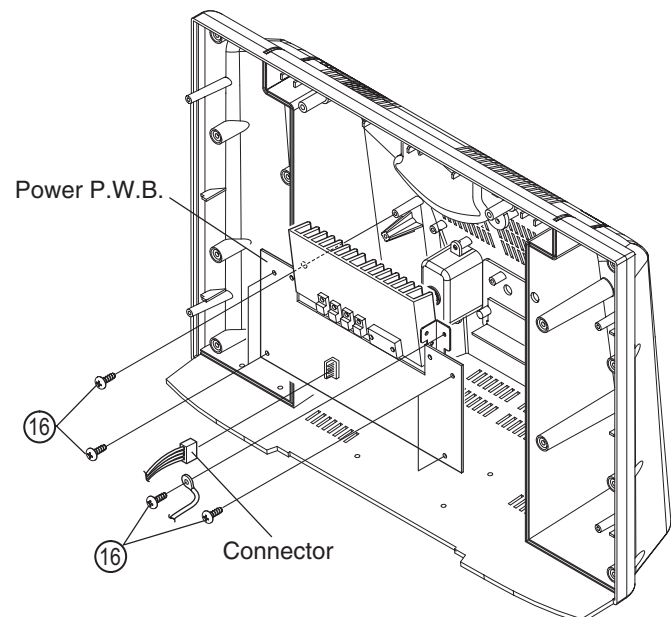
7. Tuner P.W.B.

- 1) Remove 2 screws (15).



8. Power P.W.B.

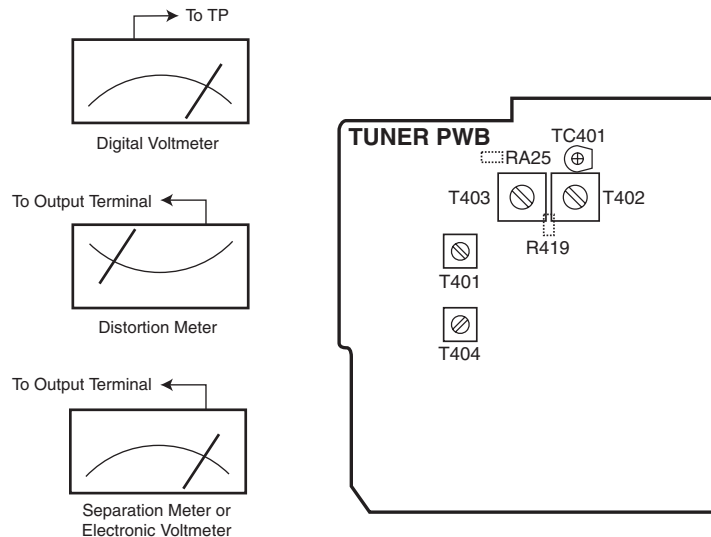
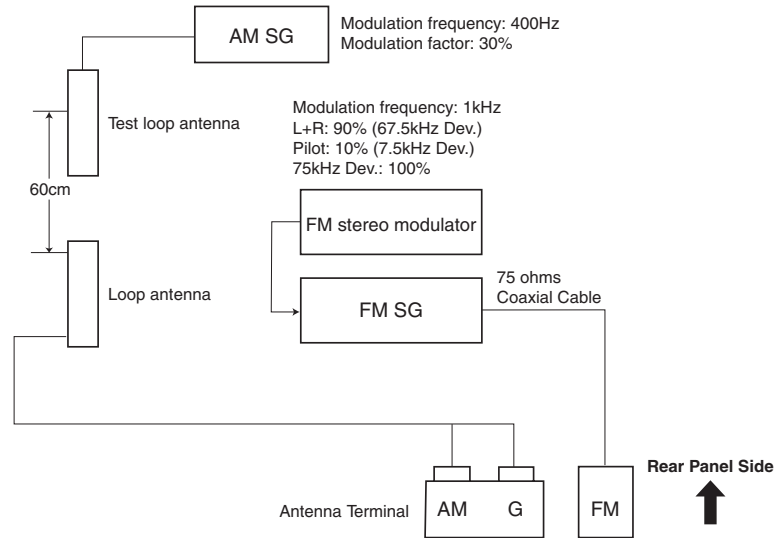
- 1) Remove 6 screws (16).
- 2) Disconnect 1 connector.



ADJUSTMENT

TUNER SECTION

Connections and adjustment point



FM ALIGNMENT (BAND BUTTON: FM, AUTO)

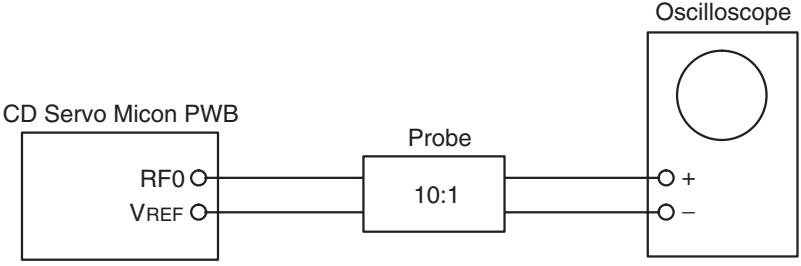
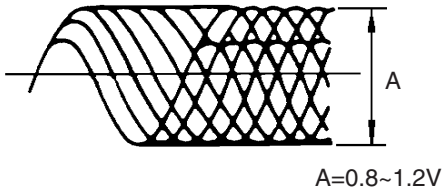
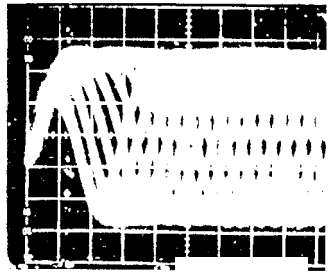
Step	Alignment Item	Tune-in Point (Channel Setting)	Input					Output		Align Part	Set Value	Remarks
			Measuring Equipment	Frequency	Level	Modulation	Connect to	Measuring Equipment	Connect to			
1	FM DC Balance	98 MHz	FM SG	98 MHz	60 dBμ	1 kHz 75 kHz dev	FM Ant Terminal	Digital Voltmeter	Both Leads of R425	T404	± 20mV	Align with Mono Modulation Signal

AM ALIGNMENT (BAND BUTTON: AM)

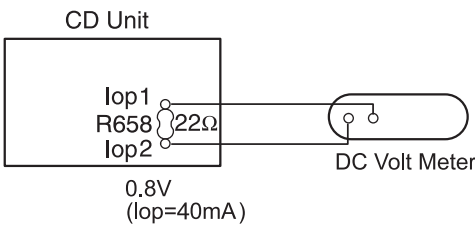
Step	Alignment Item	Tune-in Point (channel Setting)	Input					Output		Align Part	Set Value	Remarks
			Measuring Equipment	Frequency	Level	Modulation	Connect to	Measuring Equipment	Connect to			
1	Band Edge	E1:522kHz E3:520 kHz	—	—	—	—	—	Digital Voltmeter	Both Leads of R419	T403	E1: 1.3±0.2V E3: 1.0±50mV	—
		E1:1611kHz E3:1710 kHz								—	Approx. E1: (7.6±0.5V) E3: (8.3±0.5V)	No Adjustment Required
2	IF	No Broadcast Area	AM SG	(900 kHz)	No AGC Effects	400 Hz 30%	Loop Ant	Electronic Voltmeter	LINE 1 Output Terminal	T401	Maximum Output	—
3	Tracking	E1:603 kHz E3:600 kHz	AM SG	E1: 603 kHz E3: 600 kHz	No AGC Effects	400 Hz 30%	Loop Ant	Electronic Voltmeter	LINE 1 Output Terminal	T402	Maximum Output	—
4	Tracking	E1:1404 kHz E3:1400 kHz	AM SG	E1: 1404 kHz E3: 1400 kHz	No AGC Effects	400 Hz 30%	Loop Ant	Electronic Voltmeter	LINE 1 Output Terminal	TC401	Maximum Output	—
5	Repeat Steps 3 and 4, and set the output to maximum.											

CD SECTION

1. RF level Confiming

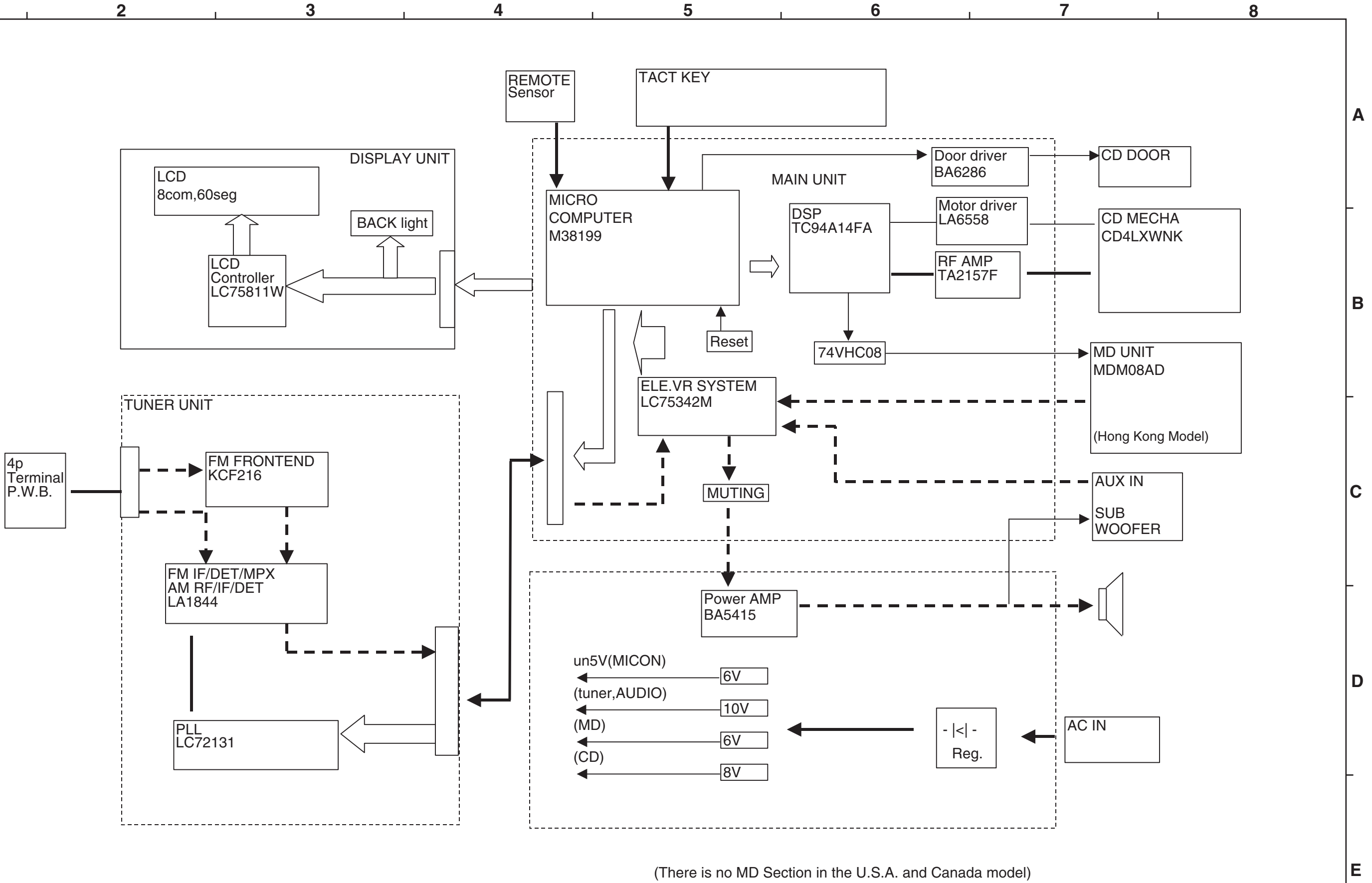
Connection		
		
Oscilloscope		Check
V	H	
50mV/div	0.2 μ s/div or 0.5 μ s/div	
<ul style="list-style-type: none"> Set input mode to ALTERNATE or CHOPPER. 		 <p>Eye Pattern</p>
		Step
		<ol style="list-style-type: none"> Press CD Play/Pause (▶/) button to make it playback state. Check RF level with oscilloscope. Confirm that the waveform is in good shape. (◇ eye pattern in center must be able to discriminate clearly.)

2. Pickup

Connection	Step
	<ol style="list-style-type: none"> Press CD Play/Pause (▶/) button to make it playback state. Measure Iop.

- Since this CD system has the built-in automatic adjustment function, re-adjustment is not necessary when replacing the pickup.
Therefore, any combination of PWB and pickup can be made freely.
As the automatic adjustment is performed every time the disc is changed, each disc can be played in the most appropriate condition.

BLOCK DIAGRAM



TEST MODE (There is no MD Section in the U.S.A. and Canada model)

From power off state to TEST mode

To enter into the TEST mode, plug the AC cord to the wall outlet while pressing the CD PLAY (CD ►/||) button and TUNER button simultaneously.

The version information is displayed initially.

Thereafter press the SKIP UP/DOWN button to select the TEST mode and then press the CD STOP button to determine it. Press the DIRECT key during version display to obtain the designated TEST mode directly.

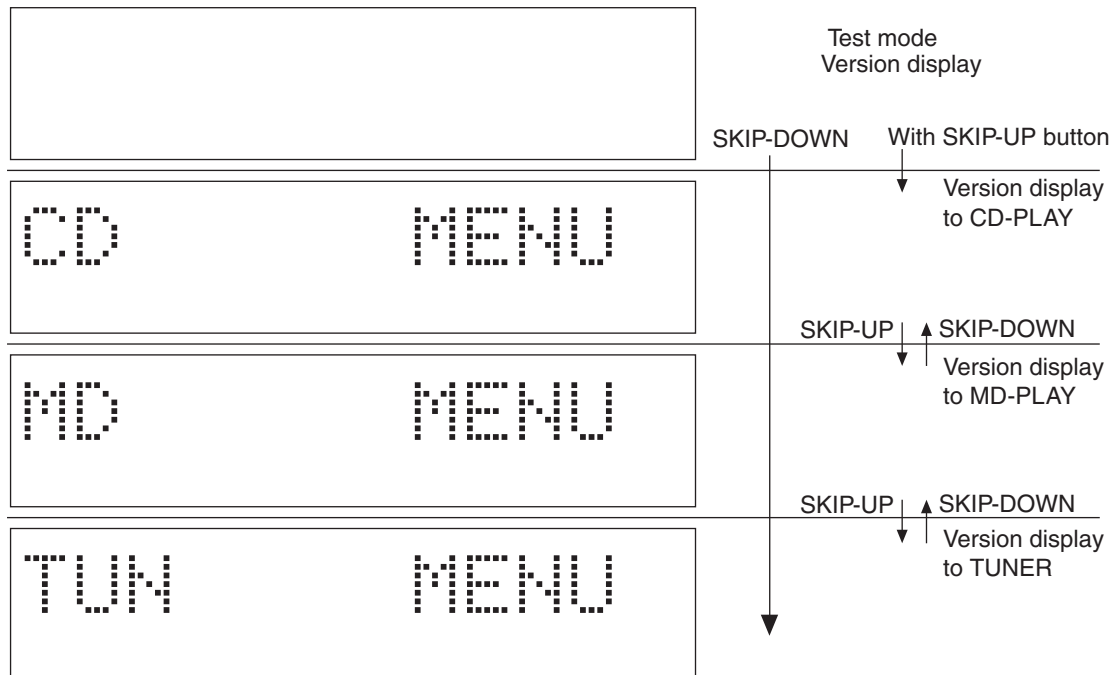
TEST MODE

No.	TEST MODE	DIRECT	DISPLAY
1	CD TEST	CD PLAY (CD ►/)	CD MENU
2	MD TEST	MD PLAY (MD ►/)	MD MENU
3	TUNER TEST	TUNER	TUN MENU

Cancelling the TEST Mode

In each TEST mode, press the POWER button to display COMPLETE for 1 second and then cancel the TEST mode.

In the MD TEST mode, press the POWER button again.

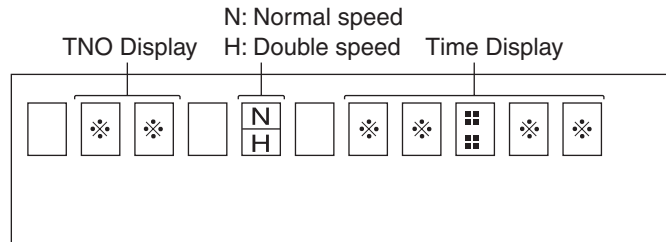


1. CD test

Outline: Readout of the set value after automatic adjustment (for judging difference from initial value)
 Forced operation of pickup (Inner/Outer circumference feed)
 During the PLAY mode, the number of errors accumulated for 10 seconds (750 frames) is displayed.

Basic CD operation by CD-PLAY button

During the TEST mode, the display is turned on and the following buttons become effective.



Operation

1. CD-PLAY: CD operation according to steps
 - STEP 1: LD ON by pressing CD PLAY button in the stop mode
 - STEP 2: Focus On by pressing CD PLAY button in STEP 1
 - STEP 3: CLV servo ON by pressing CD PLAY button in STEP 2
 - STEP 4: Tracking servo ON by pressing CD PLAY button in STEP 3
 - STEP 5: Sub-code readout/display by pressing CD PLAY button in STEP 4

* Keep pressing the CD PLAY button for more than 1 second to shift to STEP 5 directly.
2. CD STOP : To stop the playback operation (shifting from each step to the stop mode) / To reset display (during display of coefficient)
3. CD SKIP-UP (▶▶▶) : Forcible shift in the pickup FWD direction
4. CD SKIP-DOWN (◀◀◀) : Forcible shift in the pickup REV direction
5. TUNER : Automatic adjustment (at the present pickup position)
6. POWER : Canceling the test mode
7. VOLUME UP/DOWN : To read the coefficient register while the CD operation is stopped/
To display the error number during CD playback
8. CD OPEN/CLOSE : Normal open/close operation

Readout of the adjusted value

Press the VOL.UP/DOWN button during the stop mode to read the following items.

Press the CD-STOP button to return to the normal display.

Item	Display	Max	Type	Min
Focus balance	__ F B : x x	7 F	0 0	8 0
Focus gain	__ F G : x x	1 F	0 0	E 0
Tracking balance	__ T B : x x	7 F	0 0	8 0
Tracking gain	__ T G : x x	1 F	0 0	E 0
Foucus offset	F O F F : x x	7 F	0 0	8 0
Tracking offset	T O F F : x x	7 F	0 0	8 0
RFRP	R F R P : x x	7 F	0 0	8 0

Even if the CD-PLAY button is pressed initially, automatic adjustment is not obtained. Press the TUNER button in the stop mode to gain CD-PLAY for automatic adjustment. Thereafter press the CD-STOP button to stop automatic adjustment.

Press the VOL. UP/DOWN button to display automatically adjusted values.

Readout of error numbers

Press the VOL.UP/DOWN button during playback to display the number of errors accumulated for 10 seconds (750 frames).

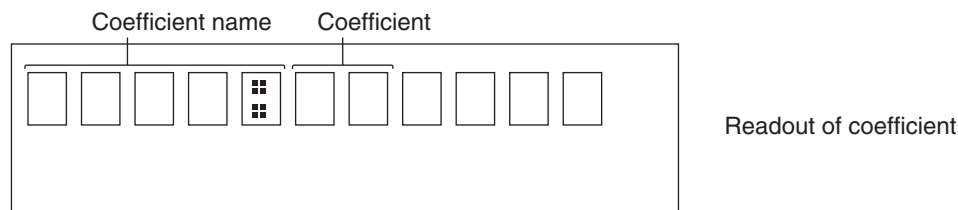
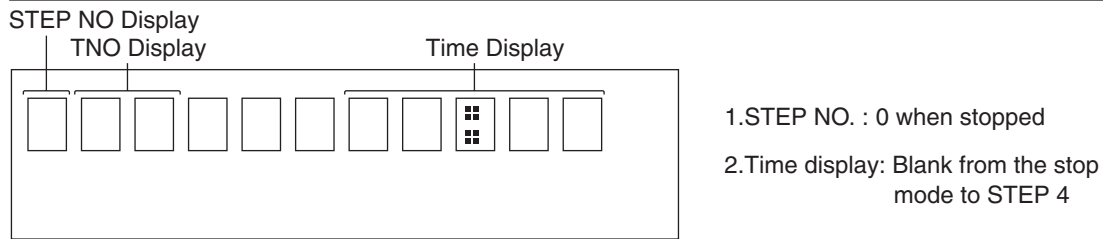
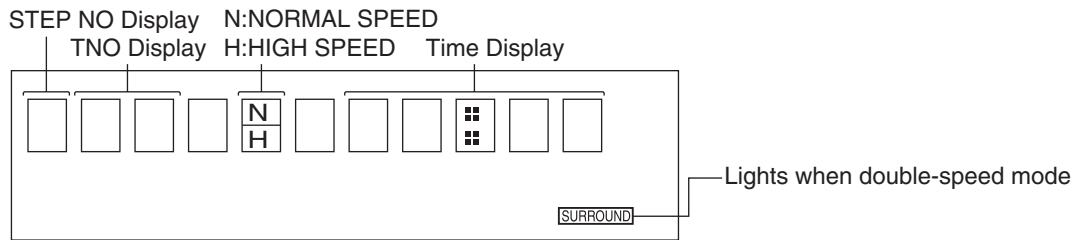
Press the CD-STOP button during ERR display to return to the normal TEST mode display.

Double-speed mode

Press the MD-REC button in the stop mode to switch to the double/constant-speed mode cyclically.

During the double-speed mode, **[SURROUND]** lights up.

CD TEST



2. MD test mode (Refer to page 12 and after.)

Button used during MD test mode

Button Name	Function
CD-PLAY	To feed the menu of the TEST mode (1) (to feed the menu relating to adjustment and EEPROM)
TUNER	To feed the menu of the TEST mode (2) (to feed the menu mainly relating to continuous playback and recording)
AUX	To feed the menu of the TEST mode (3) (to feed the menu of INNER and JUMP SELECT, etc.)
MD REC	To feed the menu of the TEST mode in reverse (to feed the menu in each test mode in reverse)
MD-PLAY	To select, determine and start the menu
MD-STOP	To stop each test item and to select the next upper menu.
(M-) SKIP-UP (▶▶I)	1. Forced slide feeding (FWD) 2. JUMP operation 3. Address setting value up, etc.
(M-) SKIP-DOWN (I◀◀)	1. Forced slide feeding (REV) 2. JUMP operation 3. Address setting value down, etc.
VOL-UP	Set value UP
VOL-DOWN	Set value DOWN
CD-STOP	1. To switch laser by EJECT 2. To switch display during continuous playback, etc.
POWER	To operation mode without automatic adjustment
MD-EJECT	Normal EJECT operation

MD SECTION

Enter the test mode, adjust or set as shown in the following table according to the repair operations.

Execution item Repair Operations	TEMP basic setting	Checking EEPROM setting	Writing the EEPROM setting	AUTO-YOBI adjustment	AUTO- adjustment	AUTO-AFB adjustment	Writing the EEPROM setting	Operation check	
	TEMP	EEPROM_SET	TEST-CANCEL	AUTO-YOBI	AUTO-ADJ	AUTO-AFB	TEST-CANCEL	TEST-PLAY	TEST-REC
PICK replacement	—	①	②	③	④	⑤	⑥	⑦	⑧
HEAD replacement	—	—	—	—	—	—	—	—	①
MECHANISM replacement	—	①	②	③	④	⑤	⑥	⑦	⑧
MAIN PWB replacement	①	②	③	④	⑤	⑥	⑦	⑧	⑨
MD microcomputer replacement	—	①	②	—	—	—	②	③	④
MD LSI replacement	—	—	—	①	②	③	④	⑤	⑥
RF IC replacement	①	②	③	④	⑤	⑥	⑦	⑧	⑨
EEPROM IC replacement	①	②	③	④	⑤	⑥	⑦	⑧	⑨

number ① to ⑧ and ⑨ indicate the order of implementation.
 "—" is an item that you don't have to execute.

The EEPROM writing result is shown at the end of the test mode
 OK_EEPROM: "SET" and "YOBI COMPLETE" were written normally
 WR_EEPROM: Although "SET" was written normally, it was not written in the "YOBI COMPLETE" state
 → Perform "AUTO-YOBI" adjustment. After making a normal adjustment.
 Write the preliminary adjustment into the EEPROM.
 NG_EEPROM: "SET" could not be written.
 → Check the connection between the MD microcomputer and the EEPROM.

1. Preparation for adjustment

Test disc

	Type	Test Disc
1	High reflection disc	TGYS1 (SONY) for playback
2	Low reflection disc	Mini disc for recording
3	—	Transparent disc for head alignment

2. Test Mode

Test mode setting method

- While the CD PLAY (CD ►/||) button and the TUNER button are pressed down together, press the POWER button and then MD PLAY button. (State ① is changed to state ②.)
- Insert the playback-only disc 1 (high reflection disc) or the recordable disc 2 (low reflection disc). (State is changed to ③.)

Above procedures will set the unit to the test mode.

① tsm 22 ○○ e △△:
 ↓ STOP state
 ② EJECT
 ↓
 ③ AUT AJST

TEST MODE ○○ represents version of MD microcomputer.

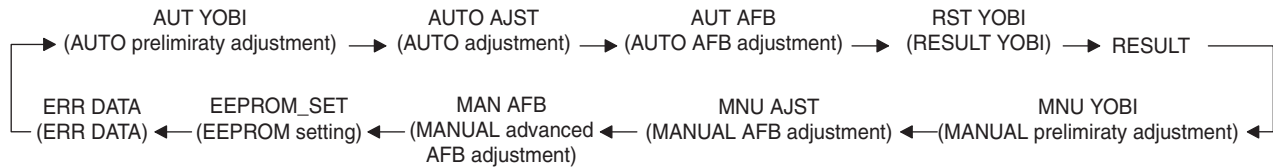
△△ represents version of EEPROM data.

(When the MD STOP button is pressed in the ③ state, the indication ① is restored. To restore ③ again, press the CD PLAY (CD ►/||) button.)

● Entering the specific mode

Whenever the CD PLAY (CD ►/||) button is pressed, the mode is changed.

If the REC button is pressed instead, the mode will change in the opposite order.



● Cancel of test mode

The mode is written on EEPROM by pressing the POWER button. If the POWER button is pressed again, the unit returns to the normal state.

- * Before pressing the POWER button, make sure that the AUTO pre-adjustment, AUTO adjustment, and AUTO AFB adjustment have been completed.
- * After the value of EEPROM is changed or the AUTO pre-adjustment, AUTO adjustment, and AUTO AFB adjustment are performed again, write on EEPROM by pressing the POWER button. (When the POWER button is pressed, data is written on EEPROM.)
- * When the value of EEPROM has been changed, write the data on EEPROM once. To preform adjustment using the data, set the unit to the TEST mode again, perform AUTO pre-adjustment, AUTO adjustment, and AUTO AFB adjustment, and then write the data again on EEPROM.

● Test mode

1. Laser Measurement Mode	<ul style="list-style-type: none"> • To Temp Setting (EEPROM_SET) • To Control Setting (EEPROM_SET) • Laser power measuring (Rec/Play power)
2. Auto Adjust Mode	• Performs automatic adjustment (after adjustment, grating adjust mode)
3. AFB Adjust Mode	• Performs focus adjustment
RST YOB I RESULT MNU YOB I MNU AJST ERR DATA	• Not necessary in servicing, do not enter in these modes
4. EEPROM Setting Mode	• Changes various digital parameters manually
5. Auto Pre-adjust Mode	• Performs automatic pre-adjustment
6. Test-play Mode	<ul style="list-style-type: none"> • Performs continuous play from the address defined • C1 error rate, ADIP error rate measurements
7. Test-rec Mode	• Performs continuous recording from the address defined

1. EJECT mode

Step No.	Setting Method	Remarks	Display
Step 1	Test mode eject status		『__ EJECT __』
Step 2	Press CD STOP button	Playback power output status	『ppw__』
Step 3	Press CD STOP button	Recording power output status	『rpw__』
Step 4	Press CD STOP button	Not for service, don't enter	『xpw__』
Step 5	Press TUNER button	To Temp Setting of EEPROM_SET (Refer to Temp Setting of EEPROM)	

Pickup Laser Power Check

The laser power in recording/playback can be checked with a laser power meter. However, only confirmation should be performed as the measurement might be inconstant. Change the pickup only when it is largely out of spec.

Reference value (at the room temperature 25°C)

At playback (ppw): 0.72±0.1 mW

At recording (rpw): 5.5±0.5 mW

Note: Be careful not to stare at laser emission as your eyesight may be damaged.

2. AUTO pre-adjustment mode (Low reflection disc only)

Step No.	Setting Method	Remarks	Display
Step 1	Test mode stop status		『tsm ○○○○ e ○○』
Step 2	Press once the CD PLAY button	Auto adjustment menu	『AUTO_AJST_』
Step 3	Press REC button	Auto pre-adjust menu	『_AUT_YOBI_』
Step 4	Press ENTER button End of adjustment	※※※ change as follows during auto-adjust HAo → → TCO If the adjust OK, go to Step 5 If the adjust NG, go to Step 6	『※※※: _ _ _ _ _』
Step 5	Grating adjustment Adjust value output Press STOP button	Step 3	『_COMPLETE_』
Step 6	Adjust value output Press STOP button	Return to Step 3	『Can't_ADJ.』

※※※: Adjustment name

3. AUTO adjustment mode

Step No.	Setting Method	Remarks	Display
Step 1	Test mode stop status		『tsm ○○○○ e ○○』
Step 2	Press CD PLAY button	Auto adjust menu	『AUTO_AJST_』
Step 3	Press MD PLAY button End of adjustment	With high reflection disc, ※※※ change as follows PEG---HAG With low reflection disc, ※※※ change as follows PEG---LAG If the adjust OK, go to Step 4 If the adjust NG, go to Step 7	『※※※ : _ _ _ _ _』
Step 4	Adjust value output Press MD PLAY button Press MD STOP button	For grating adjustment Step 5 Step 2	『_COMPLETE_』
Step 5	Continuous play (pit part) Continuous play (groove part)	C1 error check	『s □□□□ c ○○○○』 『a □□□□ c ○○○○』
Step 6	Press CD STOP button Press MD STOP button	ADIP error check Returns to Step 2	『a □□□□ a ○○○○』
Step 7	Adjust value output Press MD STOP button	Returns to Step 2	『Can't_ADJ.』

※※※: Adjustment name, ○○○○: Measured value, □□□□: Address

4. AFB Adjust Mode

Step No.	Setting Method	Remarks	Display
Step 1	Test mode stop status		『tsm ○○○○ e ○○』
Step 2	Press CD PLAY button 2 times	AFB adjust menu	『_AUT_AFB_』
Step 3	Press MD PLAY button		『FAB ○○ _ △△△△』
Step 4	Adjust value output Press MD STOP button	Returns to Step 2	

○○, △△△△: Measured value

5. EEPROM Setting Mode

A) Focus Setting

Step No.	Setting Method	Display
Step 1	Test mode stop status	『tsm ○○○○ e ○○』
Step 2	Press CD PLAY button 8 times	『EEPROM_SET』
Step 3	Press MD PLAY button	『__Focus__』
Step 4	Press MD PLAY button	『FG _____◆◆』
Step 5	Press CD PLAY button	『FG2 _____◆◆』
Step 6	Press CD PLAY button	『FF0 _____◆◆』
Step 7	Press CD PLAY button	『FF1 _____◆◆』
Step 8	Press CD PLAY button	『FF2 _____◆◆』
Step 9	Press CD PLAY button	『FZHLEV __◆◆』
Step 10	Press CD PLAY button	『FOKLEVh _◆◆』
Step 11	Press CD PLAY button	『FOKLEVL _◆◆』
Step 12	Press CD PLAY button	『FOSTn __◆◆』
Step 13	Press CD PLAY button	『DSCJG _ _◆◆』

◆◆: Setting value

B) Spindle Setting

Step No.	Setting Method	Display
Step 1	Test mode stop status	『tsm ○○○○ e ○○』
Step 2	Press CD PLAY button 8 times	『EEPROM_SET』
Step 3	Press MD PLAY button	『__Focus__』
Step 4	Press CD PLAY button 1 time	『__Spindle__』
Step 5	Press MD PLAY button	『SPG _____◆◆』
Step 6	Press CD PLAY button	『SPG __ in __◆◆』
Step 7	Press CD PLAY button	『SPG __ mid __◆◆』
Step 8	Press CD PLAY button	『SPG __ out __◆◆』
Step 9	Press CD PLAY button	『SPGM _____◆◆』
Step 10	Press CD PLAY button	『SP1 _____◆◆』
Step 11	Press CD PLAY button	『SP2 _____◆◆』
Step 12	Press CD PLAY button	『SP22 _____◆◆』
Step 13	Press CD PLAY button	『SP3 _____◆◆』
Step 14	Press CD PLAY button	『SP4 _____◆◆』
Step 15	Press CD PLAY button	『SP5 _____◆◆』
Step 16	Press CD PLAY button	『SP52 _____◆◆』
Step 17	Press CD PLAY button	『SPDLIM __◆◆』
Step 18	Press CD PLAY button	『SPKLEVm _◆◆』

◆◆: Setting value

C) Tracking Setting

Step No.	Setting Method	Display
Step 1	Test mode stop status	『tsm ○○○○ e○○』
Step 2	Press CD PLAY button 8 times	『EEPROM_SET』
Step 3	Press MD PLAY button	『_ Focus _ _』
Step 4	Press CD PLAY button 2 times	『_ Tracking _』
Step 5	Press MD PLAY button	『TG _ _ _ _ _ ◆◆』
Step 6	Press CD PLAY button	『TG2 _ _ _ _ _ ◆◆』
Step 7	Press CD PLAY button	『TF0 _ _ _ _ _ ◆◆』
Step 8	Press CD PLAY button	『TF1 _ _ _ _ _ ◆◆』
Step 9	Press CD PLAY button	『TF2 _ _ _ _ _ ◆◆』
Step 10	Press CD PLAY button	『FT3 _ _ _ _ _ ◆◆』
Step 11	Press CD PLAY button	『SVCNT4 _ _ ◆◆』
Step 12	Press CD PLAY button	『TRBLVo _ _ ◆◆』
Step 13	Press CD PLAY button	『TRBLVt _ _ ◆◆』
Step 14	Press CD PLAY button	『TRKLV0 _ _ ◆◆』
Step 15	Press CD PLAY button	『TRKLVt _ _ ◆◆』
Step 16	Press CD PLAY button	『TDPWo _ _ _ ◆◆』
Step 17	Press CD PLAY button	『TDPWt _ _ _ ◆◆』
Step 18	Press CD PLAY button	『SLCTo _ _ _ ◆◆』
Step 19	Press CD PLAY button	『SLCTt _ _ _ ◆◆』
Step 20	Press CD PLAY button	『SLCTm _ _ _ ◆◆』
Step 21	Press CD PLAY button	『TCRSC1P _ ◆◆』
Step 22	Press CD PLAY button	『TCRSC0h _ ◆◆』
Step 23	Press CD PLAY button	『TCRSC0L _ ◆◆』
Step 24	Press CD PLAY button	『TCRSCHh _ ◆◆』
Step 25	Press CD PLAY button	『TCRSCHL _ ◆◆』
Step 26	Press CD PLAY button	『COTLVp _ _ ◆◆』
Step 27	Press CD PLAY button	『COTLVr _ _ ◆◆』
Step 28	Press CD PLAY button	『JPint _ _ _ ◆◆』
Step 29	Press CD PLAY button	『KIK10 _ _ _ ◆◆』

◆◆: Setting value

D) Slide Setting

Step No.	Setting Method	Display
Step 1	Test mode stop status	『tsm ○○○○ e○○』
Step 2	Press CD PLAY button 8 times	『EEPROM_SET』
Step 3	Press MD PLAY button	『_ _ Focus _ _ _』
Step 4	Press CD PLAY button 3 times	『_ _ _ Sled _ _ _』
Step 5	Press MD PLAY button	『SLG _ _ _ _ ◆◆』
Step 6	Press CD PLAY button	『SL2 _ _ _ _ ◆◆』
Step 7	Press CD PLAY button	『SLDLIM _ _ ◆◆』
Step 8	Press CD PLAY button	『SLDLEV _ _ ◆◆』
Step 9	Press CD PLAY button	『SLKLVk _ _ ◆◆』
Step 10	Press CD PLAY button	『SLKLVt _ _ ◆◆』
Step 11	Press CD PLAY button	『SLKLVm _ _ ◆◆』
Step 12	Press CD PLAY button	『SLBKm _ _ _ ◆◆』
Step 13	Press CD PLAY button	『SLKrio _ _ ◆◆』
Step 14	Press CD PLAY button	『SLKroi _ _ ◆◆』
Step 15	Press CD PLAY button	『SLKlio _ _ ◆◆』
Step 16	Press CD PLAY button	『SLKloi _ _ ◆◆』
Step 17	Press CD PLAY button	『INNER1 _ _ ◆◆』
Step 18	Press CD PLAY button	『INNERu _ _ ◆◆』
Step 19	Press CD PLAY button	『EJ _ WAIT _ ◆◆』

◆◆: Setting value

E) Temp Setting

Step No.	Setting Method	Display
Step 1	Eject status (or without Mecha.)	『_ _ EJECT _ _ _』
Step 2	Press TUNER button	『TEMP_○○ _ ◆◆』

◆◆: Setting value, ○○: Measured value

F) Control Setting

Step No.	Setting Method	Display
Step 1	Test mode stop status	『tsm ○○○○ e○○』
Step 2	Press CD PLAY button 8 times	『EEPROM_SET』
Step 3	Press MD PLAY button	『_ _ Focus _ _ _』
Step 4	Press CD PLAY button 5 times	『_ _ Control _ _ _』
Step 5	Press MD PLAY button	『CONTRL1 _ ◆◆』
Step 6	Press CD PLAY button	『CONTRL2 _ ◆◆』
Step 7	Press CD PLAY button	『ADJTm _ _ ◆◆』
Step 8	Press CD PLAY button	『HDEQAD _ _ ◆◆』
Step 9	Press CD PLAY button	『LDEQAD _ _ ◆◆』
Step 10	Press CD PLAY button	『GDEQAD _ _ ◆◆』
Step 11	Press CD PLAY button	『GDEQAD2 _ ◆◆』
Step 12	Press CD PLAY button	『HDEQBC _ _ ◆◆』
Step 13	Press CD PLAY button	『LDEQBC _ _ ◆◆』
Step 14	Press CD PLAY button	『GDEQBC _ _ ◆◆』
Step 15	Press CD PLAY button	『GDEQBC2 _ ◆◆』
Step 16	Press CD PLAY button	『HALSG _ _ _ ◆◆』
Step 17	Press CD PLAY button	『LALSG _ _ _ ◆◆』
Step 18	Press CD PLAY button	『GALSG _ _ _ ◆◆』
Step 19	Press CD PLAY button	『HALSOFS _ _ ◆◆』
Step 20	Press CD PLAY button	『LALSOFS _ _ ◆◆』
Step 21	Press CD PLAY button	『GALSOFS _ _ ◆◆』

◆◆: Setting value

G) Adjust Setting

Step No.	Setting Method	Display
Step 1	Test mode stop status	『tsm ○○○○ e○○』
Step 2	Press CD PLAY button 8 times	『EEPROM_SET』
Step 3	Press MD PLAY button	『_ _ Focus _ _』
Step 4	Press CD PLAY button 6 times	『ADJSET _ _ _ _』
Step 5	Press MD PLAY button	『COK _ _ _ _ ◆◆』
Step 6	Press CD PLAY button	『FAT _ _ _ _ ◆◆』
Step 7	Press CD PLAY button	『TAT _ _ _ _ ◆◆』
Step 8	Press CD PLAY button	『CAT _ _ _ _ ◆◆』
Step 9	Press CD PLAY button	『FAB _ _ _ _ ◆◆』
Step 10	Press CD PLAY button	『STR _ _ _ _ ◆◆』
Step 11	Press CD PLAY button	『SFS _ _ _ _ ◆◆』
Step 12	Press CD PLAY button	『STC _ _ _ _ ◆◆』

◆◆: Setting value

H) REC bit setting

Step No.	Setting Method	Display
Step 1	Test mode stop status	『tsm ○○○○ e○○』
Step 2	Press CD PLAY button 8 times	『EEPROM_SET』
Step 3	Press MD PLAY button	『_ _ Focus _ _』
Step 4	Press CD PLAY button 7 times	『RECbit _ SET』
Step 5	Press MD PLAY button	『SP _ WR50 _ ◆◆』
Step 6	Press CD PLAY button	『SP _ WR56 _ ◆◆』
Step 7	Press CD PLAY button	『SP _ WR44 _ ◆◆』
Step 8	Press CD PLAY button	『SP _ WR53 _ ◆◆』
Step 9	Press CD PLAY button	『LP2WR50 _ ◆◆』
Step 10	Press CD PLAY button	『LP2WR56 _ ◆◆』
Step 11	Press CD PLAY button	『LP2WR44 _ ◆◆』
Step 12	Press CD PLAY button	『LP2WR53 _ ◆◆』
Step 13	Press CD PLAY button	『LP4WR50 _ ◆◆』
Step 14	Press CD PLAY button	『LP4WR56 _ ◆◆』
Step 15	Press CD PLAY button	『LP4WR44 _ ◆◆』
Step 16	Press CD PLAY button	『LP4WR53 _ ◆◆』
Step 17	Press CD PLAY button	『RVD _ _ _ _ ◆◆』

◆◆: Setting value

6. Test-play Mode (For checking playback performance at the address defined.)

Step No.	Setting Method	Remarks	Display
Step 1	Test mode stop status		『tsm ○○○○ e ○○』
Step 2	Press TUNER button	Test-play menu	『TEST_PLAY_』
Step 3	Press CD STOP button Press MD PLAY button	Address setting (displays address initial value)	『ADRES_0032』
Step 4	Continuous play (pit part) Continuous play (groove part)	(Address + C1 error display) (Address + C1 error display)	『s □□□□ c ○○○○』 『a □□□□ c ○○○○』
Step 5	Press CD STOP button Continuous play (groove part)	(Address + ADIP error display)	『a □□□□ a ○○○○』
Step 6	Press MD STOP button	Test-play menu	『TEST_PLAY_』

7. Test-rec Mode

Use a disc for recording function check. (For checking recording performance at the address defined.)

Step No.	Setting Method	Remarks	Display
Step 1	Test mode stop status		『tsm ○○○○ e ○○』
Step 2	Press TUNER button 2 times	Test-rec menu	『TEST_REC_』
Step 3	Press CD STOP button	Address setting (displays address initial value)	『a0032_pw ▽▽』
Step 4	Press MD PLAY button	Continuous recording	『a □□□□ pw ▽▽』
Step 5	Press MD STOP button	Test-rec menu	『TEST_REC_ _』

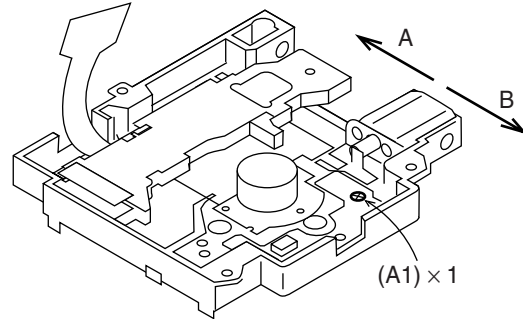
● Lead-in SW Position Measurement Mode

1. Adjustment

Load the high reflection test disc TGYS1.

Note: Adjust the lead-in switch position to FF85 ~ FFD2.

1. Loosen 1 screw (A1) fixing the Mecha. SW P.W.B.
 2. Loosen the screw once and retighten it with pushing the P.W.B. to the A direction if the lead-in switch position is less than FF85 before loosening the screw, or with pushing to the B direction if the position is more than FFD2.
- Then measure the lead-in switch position again, and tighten the screw (A1) firmly if it's within the spec.



2. Confirmation

Check that the display shows “_COMPLETE_” instead of “#COMPLETE_” in step 4 of the AUTO adjustment mode.

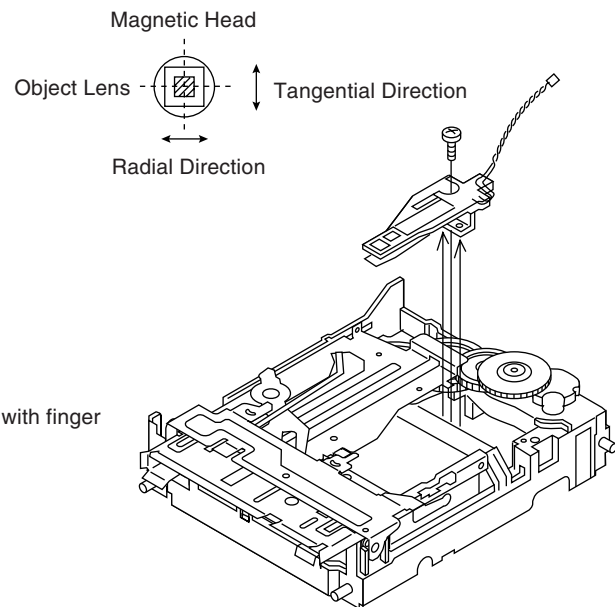
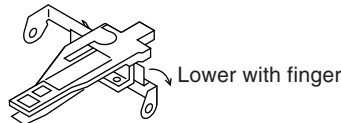
● Rotating the loading motor forcibly

The loading motor can be rotated forcibly by rotating the VOL UP/DOWN button while STOP or EJECT in the test mode appears on the display

● Magnetic Head Mounting Position Check

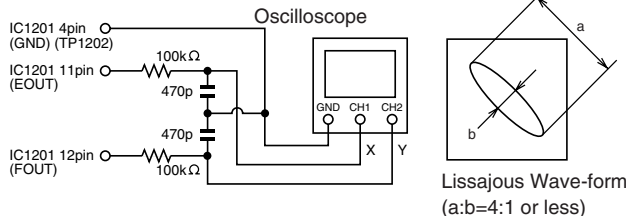
- Check the mounting position of the magnetic head without fail when replacing the head or optical pickup.
- To adjust the mounting position easier, move the optical pickup to the center position beforehand.

1. Load the transparent test disc for head alignment.
2. Lower the magnetic head up-shift arm manually to lift up the magnetic head.
3. View the unit from the above and check that the object lens of the pickup aligns with the magnetic head.
4. Check whether the magnetic head moves up or down smoothly.



● Mechanism Adjustment

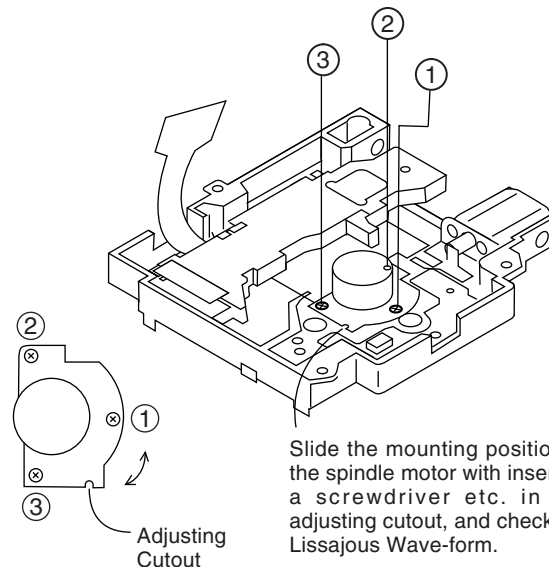
- How to check optical pickup grating



Optical Pickup Grating Deviation Measuring Method

Adjust the Lissajous Wave-form (x-y) of EOUT against FOUT after performing automatic adjustment at Auto Adjust Mode (COMPLETE indication) using the high reflection test disc.

1. Loosen 3 screws fixing the spindle motor a little, and adjust with watching the Lissajous Wave-form.
2. Tighten the screws in the order 1, 2, and 3 after the adjustment.



Slide the mounting position of the spindle motor with inserting a screwdriver etc. in the adjusting cutout, and check the Lissajous Wave-form.

● Detailed Description of Error Indication

Error Indication	Content of Error	Remedy
Can't REC	<ul style="list-style-type: none"> • DEFECT occurred continuously for 10 times during REC-PLAY • Record enable cluster become 0 due to DEFECT occurrence during REC-PLAY. • Unable to read address. However repeating try, unable to enter REC mode in 20 seconds. 	<ul style="list-style-type: none"> • Is there any scratch, dust, finger print, black spot, etc. on the disc? Check for eccentricity, warp, etc. of disc.
Can't COPY	<ul style="list-style-type: none"> • With the channel status of input digital signal from D-IN during REC-PAUSE or RE-PLAY, it is judged as follows. (1) Except audio. (2) Except public use. (3) Copy NG by reverse of CD COPY bit. 	<ul style="list-style-type: none"> • Check if the copy inhibit. (Example: CD-R, etc.)
NO SIGNAL	<ul style="list-style-type: none"> • Becomes as follows against the digital signal input from D-IN during REC-PAUSE, REC-PLAY or CD FUNC playback. (1) Digital IN PLL is UNLOCKED. (2) Locked other than FS=44.1 kHz 	<ul style="list-style-type: none"> • Check for abnormality in D-IN signal line.
TOC FULL	<ul style="list-style-type: none"> • No registering area for character information. (music name, disc name, etc..) • No recording area in UTOC remained when entering REC-PAUSE. • No remaining program area for music data. 	<ul style="list-style-type: none"> • Replace with another disc having record area remained.
Can't u READ	<ul style="list-style-type: none"> • FTNO > LTNO. • FTNO ≠ 0 or 1. • Unable to read UTOC recorded on the disc. 	<ul style="list-style-type: none"> • Replace with the other disc as abnormality exists in data of UTOC.
TOC FROM a	<ul style="list-style-type: none"> • Start address > End address when TOC read. 	<ul style="list-style-type: none"> • Replace with the other disc as abnormality exists in data of UTOC.
TOC FROM L0~4	<ul style="list-style-type: none"> • One of UTOC 0~4 data is looped when TOC read. 	<ul style="list-style-type: none"> • Replace with the other disc as abnormality exists in data of UTOC.
NOT AUDIO	<ul style="list-style-type: none"> • Other than audio data is recorded in TNO track mode with oresently selected music. 	<ul style="list-style-type: none"> • Select other TNO or replace with other disc.
? DISC	<ul style="list-style-type: none"> • Not a MD format disc is inserted. 	<ul style="list-style-type: none"> • Out of spec disc, replace with others and check.
DISC FULL	<ul style="list-style-type: none"> • When entering REC-PAUSE or edit, found that the disc is for playback only. 	<ul style="list-style-type: none"> • As the disc is playback only, replace with a recording disc.
PROTECTED	<ul style="list-style-type: none"> • Attempted to record or edit as the mis-erasure preventive knob of REC/PLAY disc set to preventive position. • Attempted to edit the write protect track by information written in UTOC. 	<ul style="list-style-type: none"> • Set the mis-erasure preventive knob back to the former position and retry. • As the track attempted to edit is write protect, try it in the other track.
Can't EDIT	<ul style="list-style-type: none"> • At each edit function, editing conditions are not satisfied. 	<ul style="list-style-type: none"> • Operating method is wroug. Try it again with correct manner.
TEMP OVER	<ul style="list-style-type: none"> • The temperature inside (MD unit) is too high due to abnormality. 	<ul style="list-style-type: none"> • Check according to the troubleshooting. • Avoid using in a high temperature.
Can't r READ * (* is the symbol of number)	<ul style="list-style-type: none"> • As a result of reading data, the data is not correct. • Unable to read correctly. • As abnormality occurred while recording music data, unable to perform correct recording. 	<ul style="list-style-type: none"> • Abnormality in data of TOC, UTOC, disc scratch, etc. Replace with the other disc.
Can't READ s Can't READ r	<ul style="list-style-type: none"> • Attempted to read TOC, but couldn't. • As a result of reading TOC, data is not correct. 	<ul style="list-style-type: none"> • TOC information recorded on disc is not met with the MD spec requirement. Replace with the other disc. • Scratch, etc. on the disc, Replace with the other disc.

Error Indication	Content of Error	Remedy
Can't WRITE	<ul style="list-style-type: none"> As abnormality occurred during UTOC rewriting, unable to perform correct rewriting. 	<ul style="list-style-type: none"> Scratch, etc. on the disc. Replace with the other disc.
FOCUS ERROR	<ul style="list-style-type: none"> Unable to lead in FOCUS as the disc is inserted. 	<ul style="list-style-type: none"> Is there any scratch, dust, finger print, black spot, etc. on the disc? Check for considerable eccentricity, warp etc. disc.
BLANK MD	<ul style="list-style-type: none"> As a result of reading UTOC, all TNO and NAME character number is 0. 	<ul style="list-style-type: none"> Record and check whether the disc is able to record.
Defect	<ul style="list-style-type: none"> Focus lead in error, etc. occurred due to shock during REC-PLAY. 	<ul style="list-style-type: none"> Is there any scratch, dust, finger print, black spot, etc. on the disc? Check for considerable eccentricity, warp, etc. of disc.
Er-MD 80	<ul style="list-style-type: none"> Incorrect data of EEPROM. 	<ul style="list-style-type: none"> Reset once and retry. If it still errs, replace the EEPROM.

● Detailed Description of Mechanism Error

Error Indication	Content of Error
Er-MD 1 * Er-MD 2 * Er-MD 3 *	Does not complete EJECT for long Does not perform HEAD UP for long Does not perform HEAD DOWN for long

	HINF (93 Pin of IC1401)
* =E EJECT complete position	< 1.0V
* =M LOAD/EJECT halfway position	> 3V
* =L LOAD complete position	1.31~2.35V
* =D HEAD DOWN position	1.01~1.3V

EEPROM WRITING PROCEDURE

● EEPROM (IC1402) writing procedure

1. Method for setting the reference temperature value

(This setting should be performed quickly at a room temperature, between 21°C to 29°C when the PWB is not hot.)

- 1) When replacing the EEPROM, wait until it has cooled down.
- 2) Connect the main unit using the single MD main PWB.
- 3) Enter the test mode as shown on page 12.

“EJECT”

- 4) Press the TUNER (BAND) button.

“TEMP ○○◆◆”

○○: Measured temperature, ◆◆: Temperature setting

- 5) Find the temperature correction value for the current ambient temperature on the following table. Adjust the temperature correction value using the VOLUME UP/DOWN button.

Ambient Temperature	Correction
+21.0°C~+23.2°C	-1H
+23.3°C~+26.8°C	±0H
+26.9°C~+29.0°C	+1H

An example: When ambient temperature is 22°C and measured temperature is 7AH

Temperature setting = 7AH-01H

= 79H

* When the measured temperature fluctuates between two values, take lower one (if temperature fluctuates between 7AH and 79H, take 79H).

- 6) Press the POWER button and write the temperature setting into the EEPROM.

2. Method of making settings other than the reference temperature

- 1) Install the MD main PWB in the mechanism, and connect it to the main unit.
- 2) Enter the test mode as shown on page 12, and insert a disc.
“AUTO AJST”
- 3) Press the CD PLAY button seven times.
“EEPROM SET”
- 4) Set the value according to the EEPROM DATA LIST using the VOLUME UP/DOWN button.
- 5) Press the POWER button, and the settings will be written into the EEPROM.
- 6) Enter the test mode again, perform an “AUTO YOBİ adjustment”, and write the results into the EEPROM.

Table of EEPROM Contents (Version: 01)**(a) Focus Setting**

Item	Setting
FG_____\$\$	9BH
FG2_____\$\$	B1H
FF0_____\$\$	10H
FF1_____\$\$	70H
FF2_____\$\$	E0H
FZHLEV_\$\$	EDH
FOKLEVh_\$\$	07H
FOKLEVt_\$\$	09H
FOSTn_\$\$	2CH
DSCJG_\$\$	0DH

(b) Spindle Setting

Item	Setting
SPG_____\$\$	11H
SPG_in_\$\$	60H
SPG_mid_\$\$	4BH
SPG_out_\$\$	3BH
SPGM_\$\$	96H
SP1_____\$\$	10H
SP2_____\$\$	93H
SP22_____\$\$	93H
SP3_____\$\$	EDH
SP4_____\$\$	EEH
SP5_____\$\$	20H
SP52_____\$\$	20H
SPDLIM_\$\$	62H
SPKLEVm_\$\$	16H

(c) Tracking Setting

Item	Setting
TG_____\$\$	49H
TG2_____\$\$	6BH
TF0_____\$\$	10H
TF1_____\$\$	6BH
TF2_____\$\$	F0H
FT3_____\$\$	08H
SVCNT4_\$\$	01H
TRBLVo_\$\$	62H
TRBLVt_\$\$	4CH
TRKLVo_\$\$	5BH
TRKLVt_\$\$	2BH
TDPWo_\$\$	67H
TDPWt_\$\$	21H
SLCTo_\$\$	00H
SLCTt_\$\$	50H
SLCTm_\$\$	53H
TCRSCIP_\$\$	16H
TCRSC0h_\$\$	00H
TCRSC0L_\$\$	FAH
TCRSCHh_\$\$	02H
TCRSCHL_\$\$	02H
COTLVp_\$\$	0AH
COTLVr_\$\$	28H
JPint_\$\$	00H
KIK10_\$\$	64H

(d) Slide Setting

Display	Setting
SLG_\$\$	46H
SL2_\$\$	10H
SLDLIM_\$\$	7FH
SLDLEV_\$\$	14H
SLKLVk_\$\$	60H
SLKLVt_\$\$	34H
SLKLVm_\$\$	60H
SLBKm_\$\$	08H
SLKrio_\$\$	64H
SLKroi_\$\$	62H
SLKlio_\$\$	64H
SLKloi_\$\$	60H
INNER1_\$\$	86H
INNERu_\$\$	D0H
EJ_WAIT_\$\$	78H

(e) Control Setting

Display	Setting
CONTRL1_\$\$	08H
CONTRL2_\$\$	02H
ADJTTM_\$\$	14H
HDEQAD_\$\$	92H
LDEQAD_\$\$	8EH
GDEQAD_\$\$	91H
GDEQAD2_\$\$	91H
HDEQBC_\$\$	8CH
LDEQBC_\$\$	8FH
GDEQBC_\$\$	8AH
GDEQBC2_\$\$	8AH
HALSG_\$\$	11H
LALSG_\$\$	11H
GALSG_\$\$	11H
HALSOFS_\$\$	FFH
LALSOFS_\$\$	00H
GALSOFS_\$\$	00H

(f) ADJSET

Display	Setting
COK_\$\$	58H
FAT_\$\$	C0H
TAT_\$\$	3EH
CAT_\$\$	40H
FAB_\$\$	(64H) *
STR_\$\$	0BH
SFS_\$\$	0DH
STC_\$\$	0DH

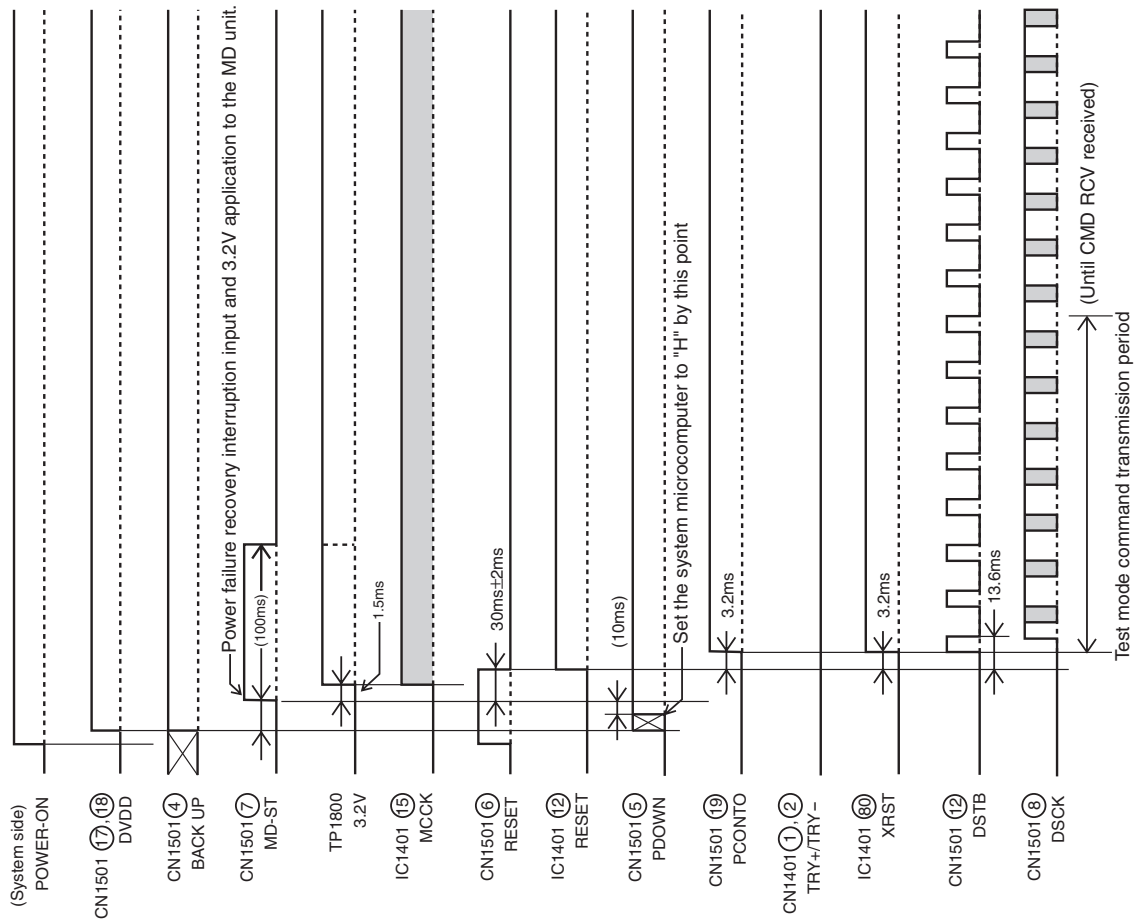
* AFB adjusted value enters.

(g) REC bit Setting

Item	Setting
SP_WR50_\$\$	C0H
SP_WR56_\$\$	FEH
SP_WR44_\$\$	00H
SP_WR53_\$\$	16H
LP2WR50_\$\$	80H
LP2WR56_\$\$	20H
LP2WR44_\$\$	80H
LP2WR53_\$\$	00H
LP4WR50_\$\$	BFH
LP4WR56_\$\$	02H
LP4WR44_\$\$	80H
LP4WR53_\$\$	00H
RVD_\$\$	01H

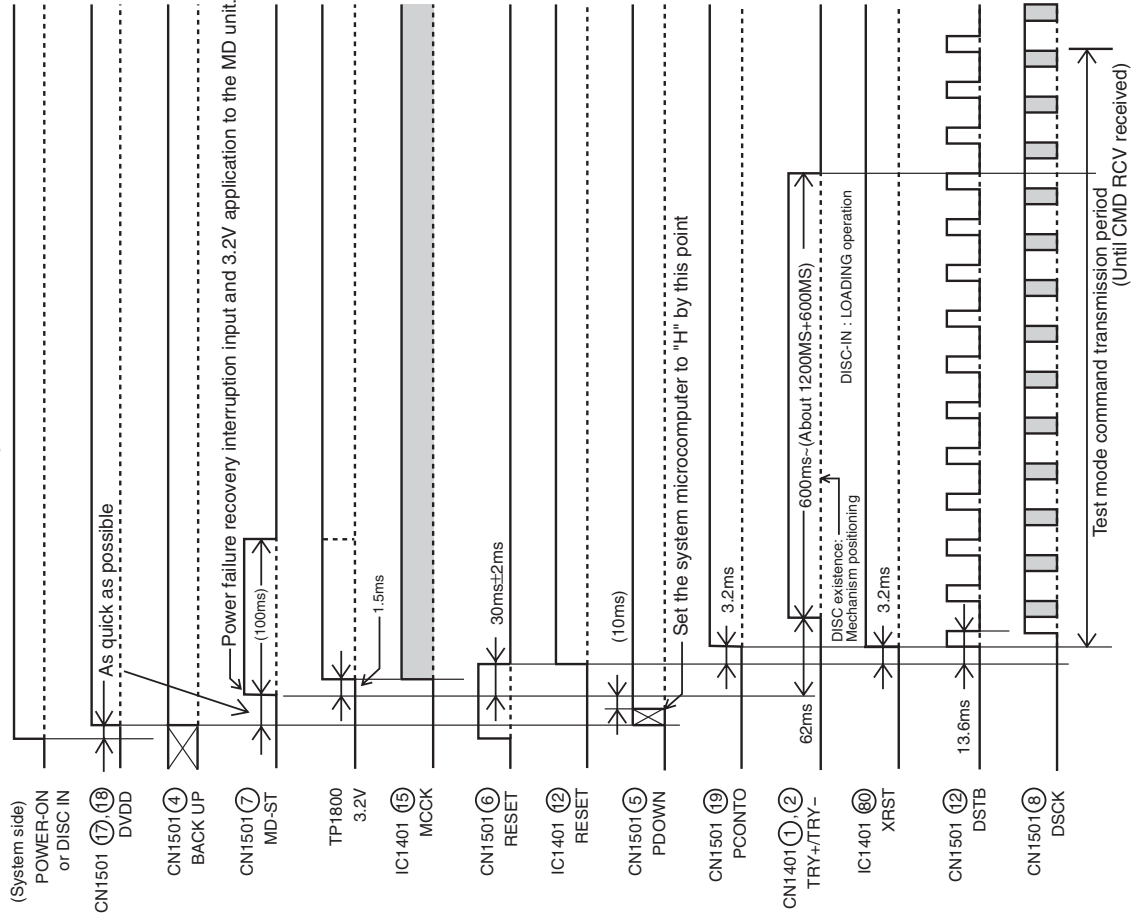
MD power ON time chart

Power on sequence for the MD unit (when resetting or starting it ① : no disc)



Power on sequence for the MD unit

(When resetting or starting it ② : DISC IN or disc existence)



TROUBLESHOOTING OF CD

CD SECTION

When the CD does not function

When the CD section does not operate when the objective lens of the optical pickup is dirty, this section may not operate. Clean the objective lens, and check the playback operation. When this section does not operate even after the above step is taken, check the following items.

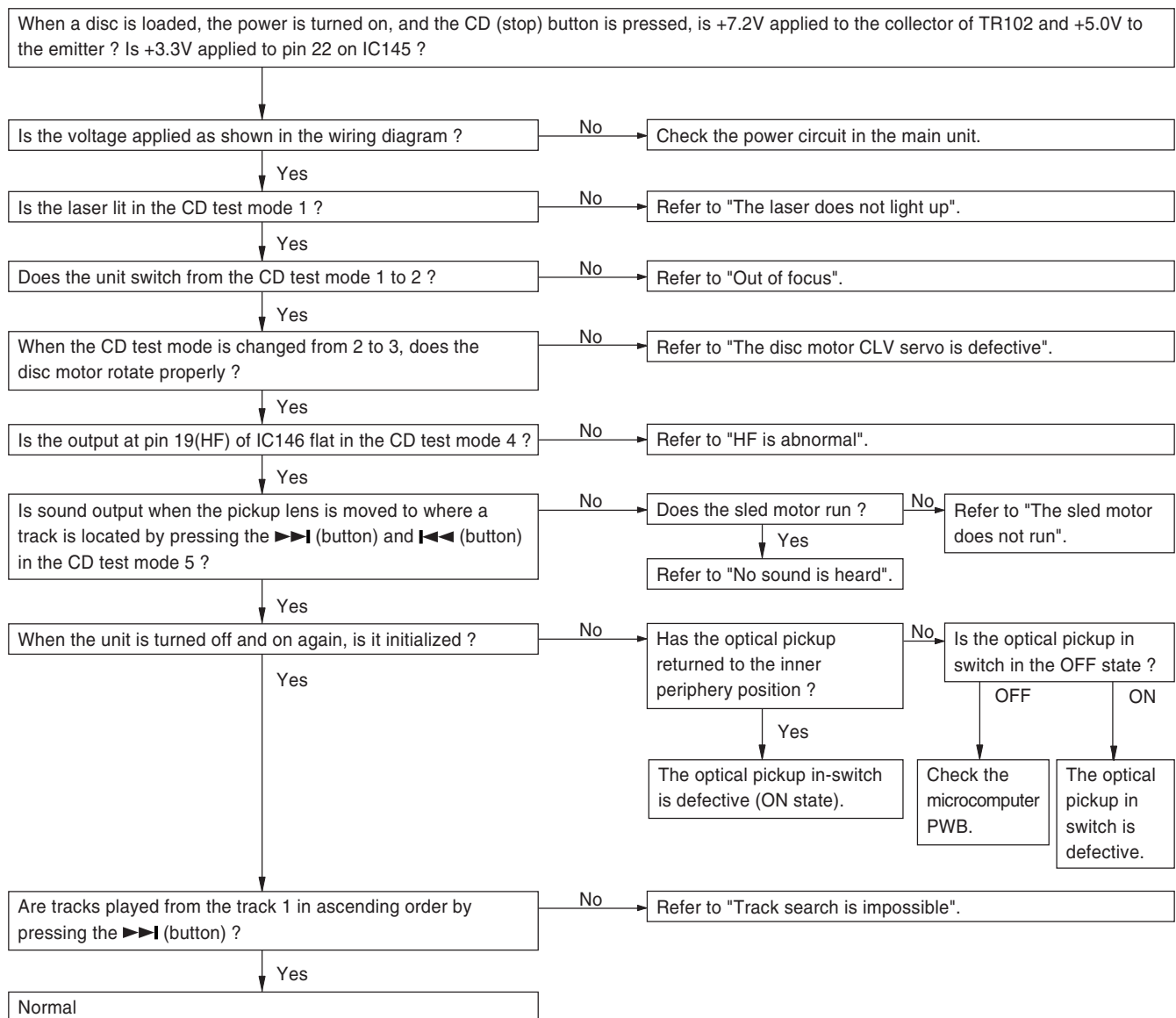
Remove the cabinet and follow the trouble shooting instructions.

"Track skipping and/or no TOC (Table of Contents) may be caused by build up of dust other foreign matter on the laser pickup lens. Before attempting any adjustment make certain that the lens is clean. If not, clean it as mentioned below."

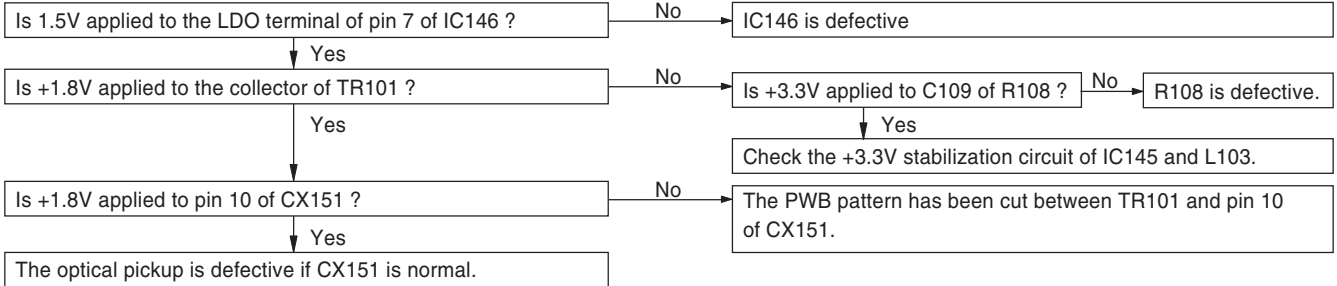
Turn off the power, and wipe the lens softly using a cleaning paper moistened with commercially available cleaning solution so as not to damage it.

Be careful not to touch the lens with bare hands.

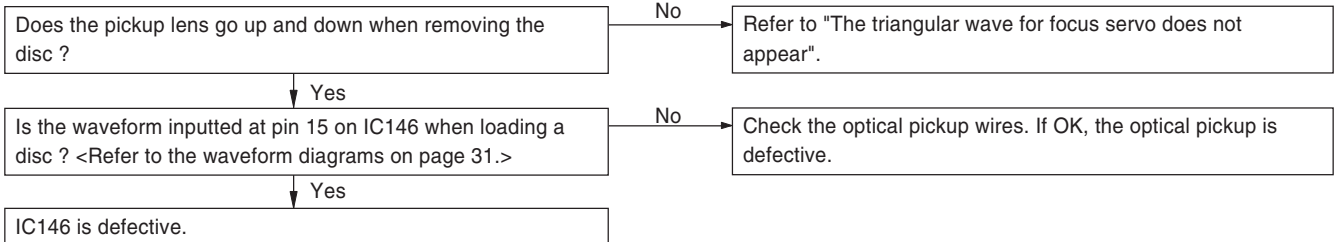
Dust gradually accumulates on the objective lens during use, and it may degrade performance. To avoid this problem, use a cleaning disc designed for CD optical pickup lenses.



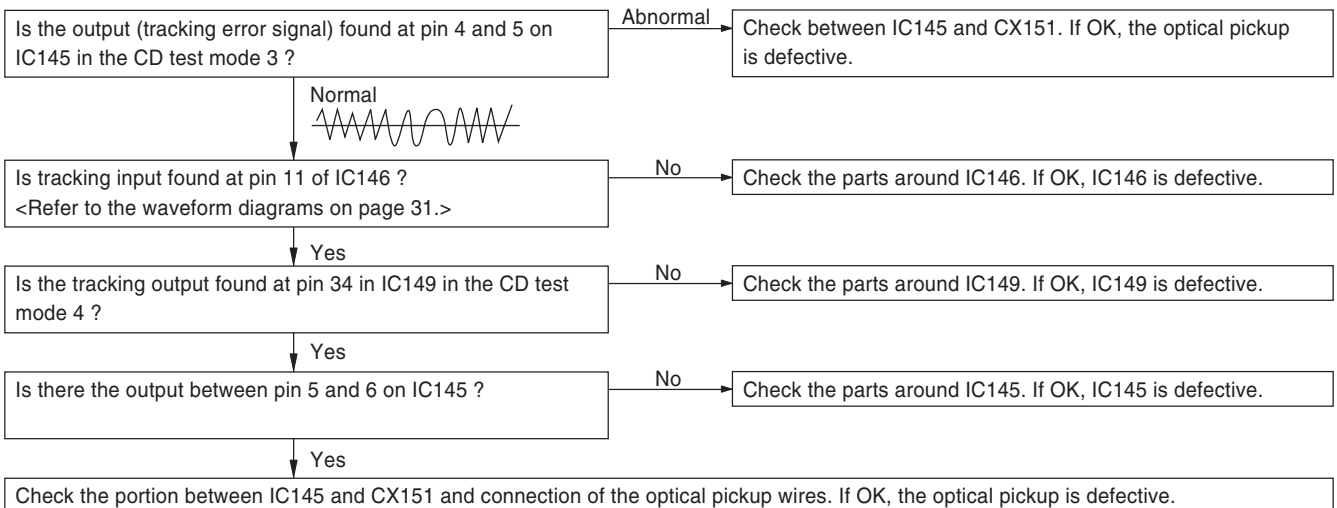
The laser does not light up



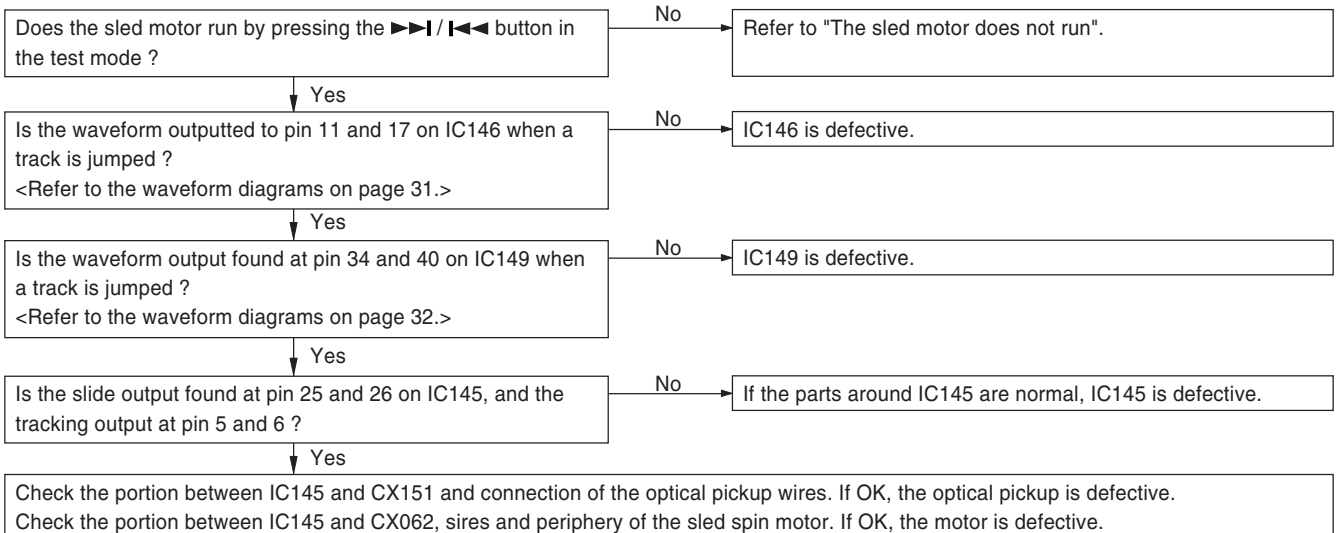
Out of focus



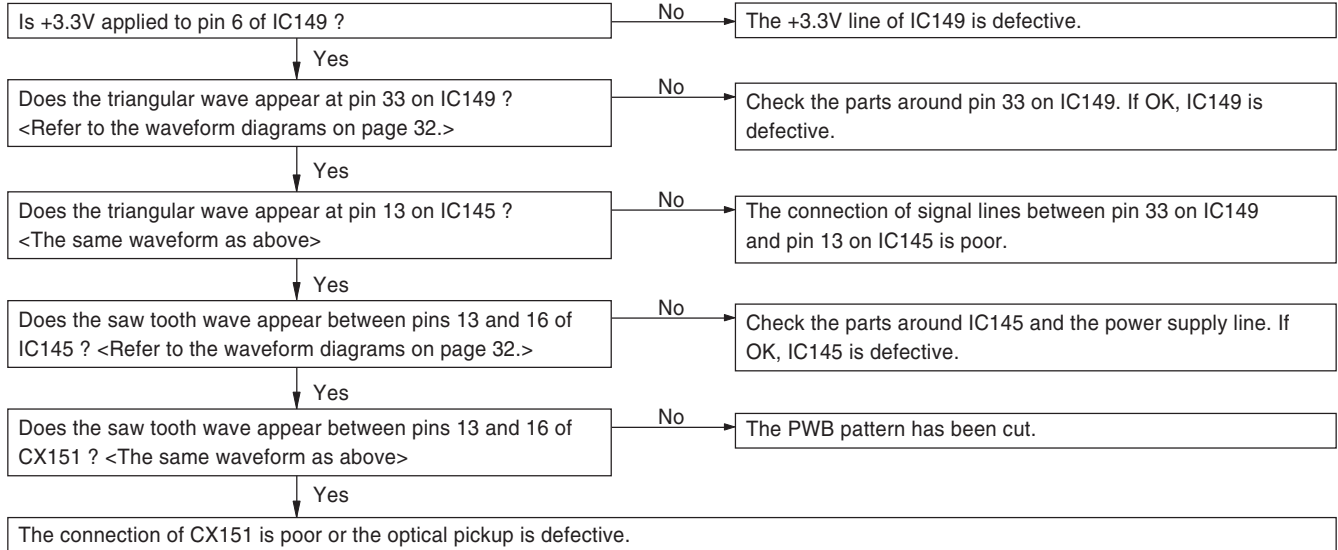
HF is abnormal



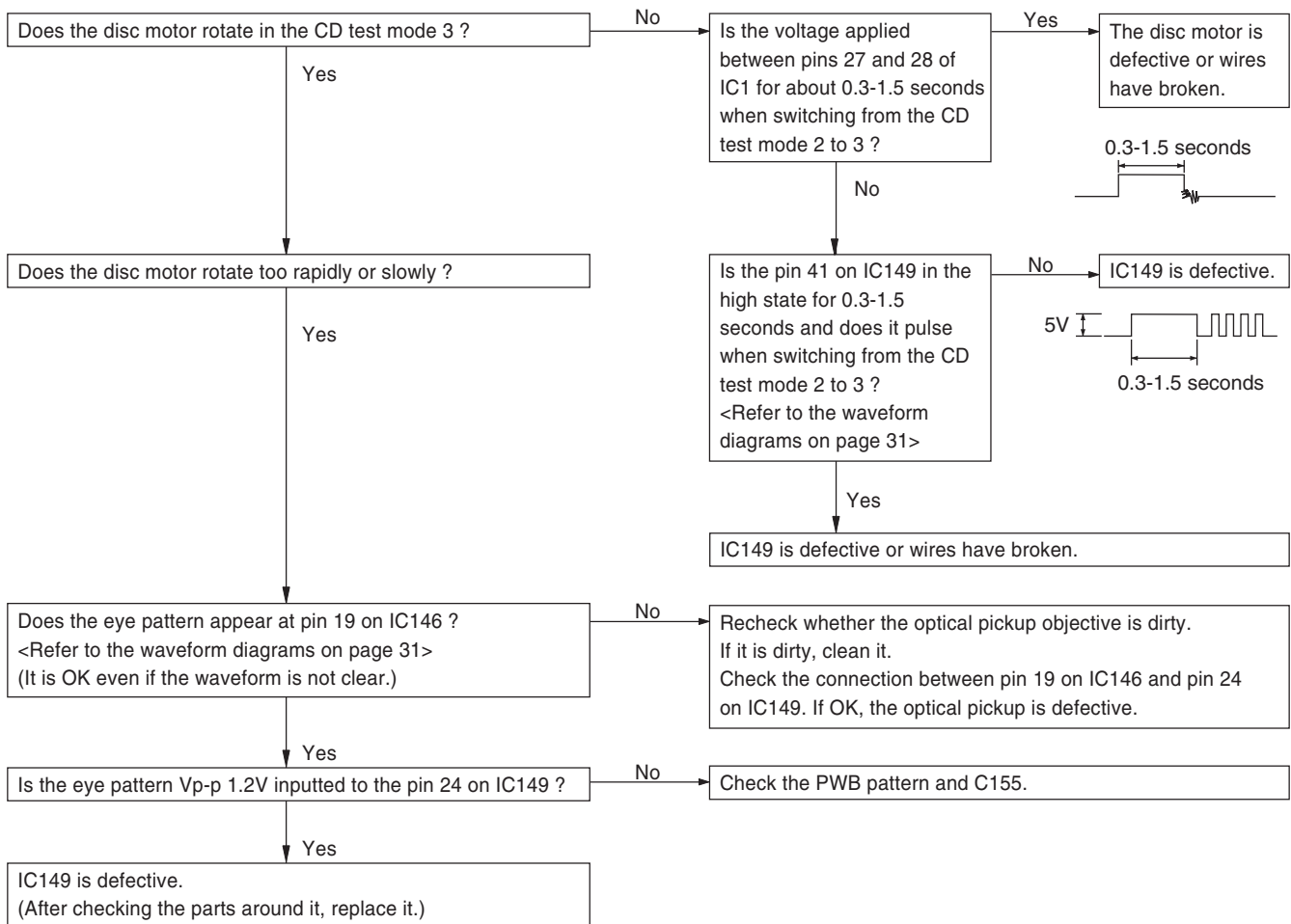
Track search is impossible



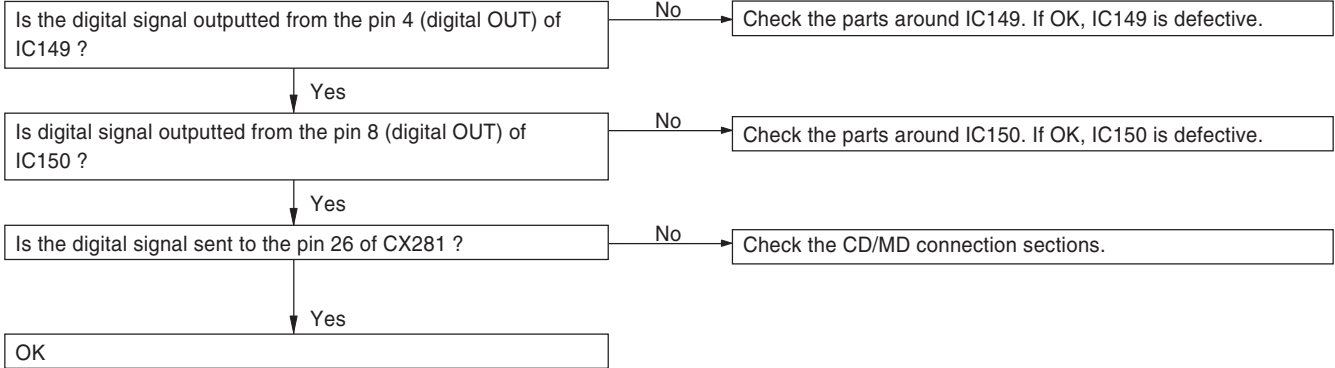
The triangular wave for focus servo does not appear



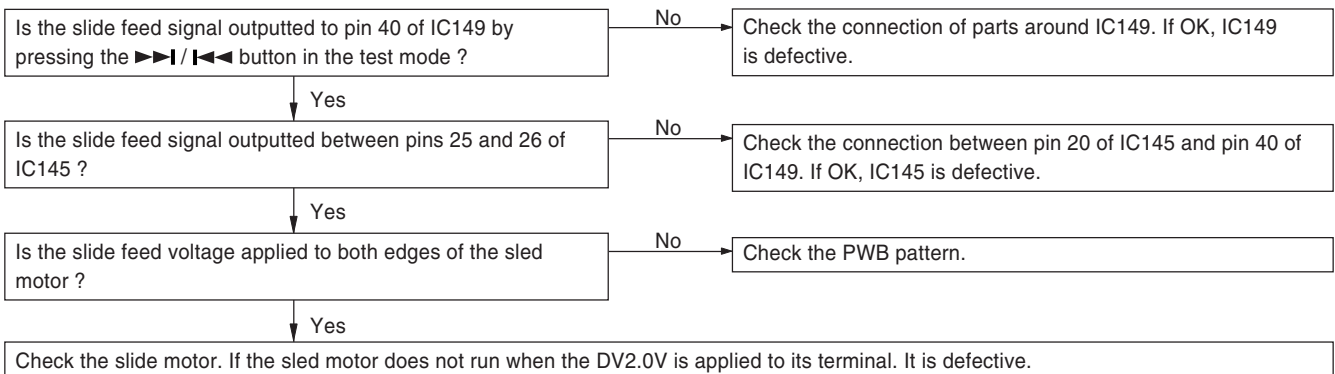
This disc motor CLV servo is defective



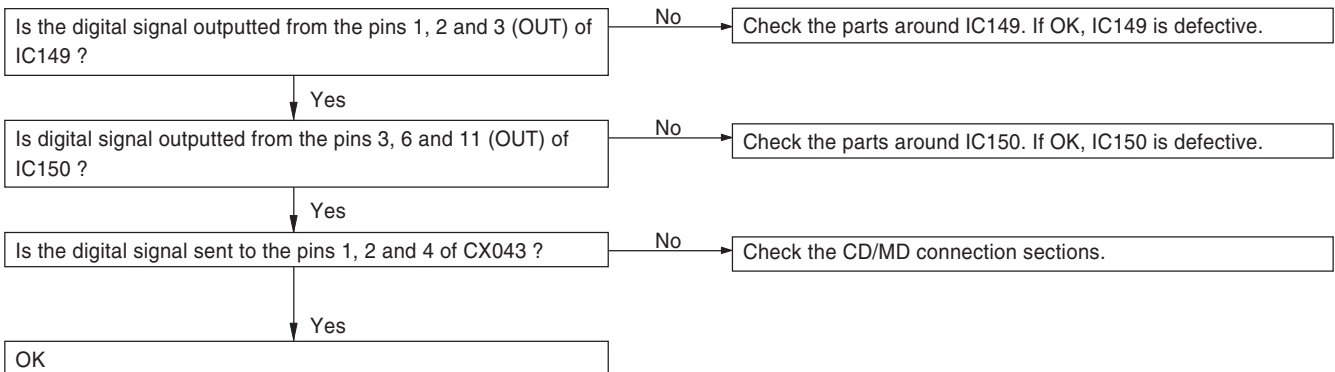
No sound is heard



The slide motor does not run

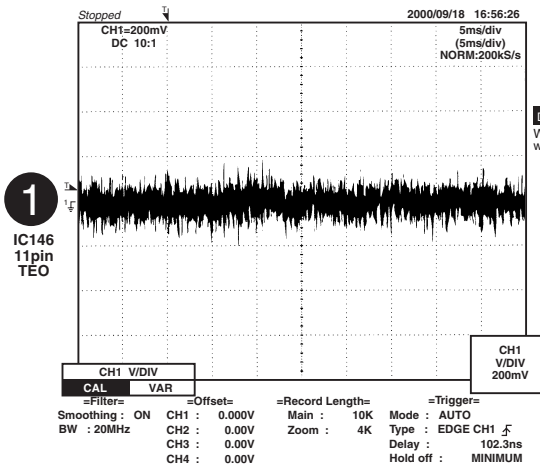


No sound is heard during double speed EDIT (The recording is impossible)

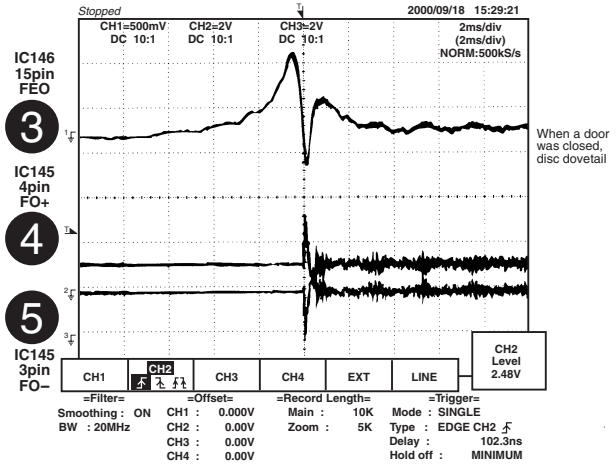


WAVEFORMS OF CD CIRCUIT

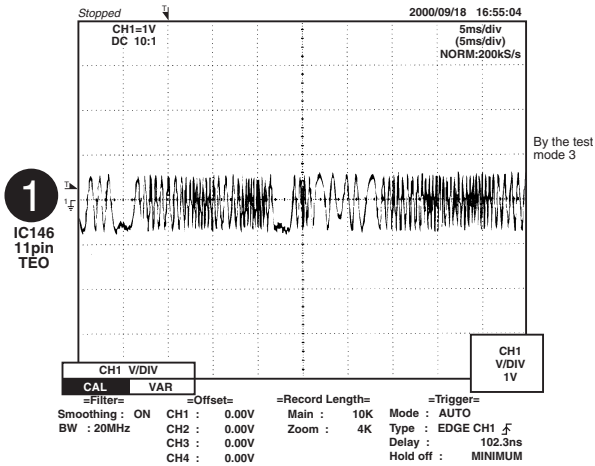
Tracking error



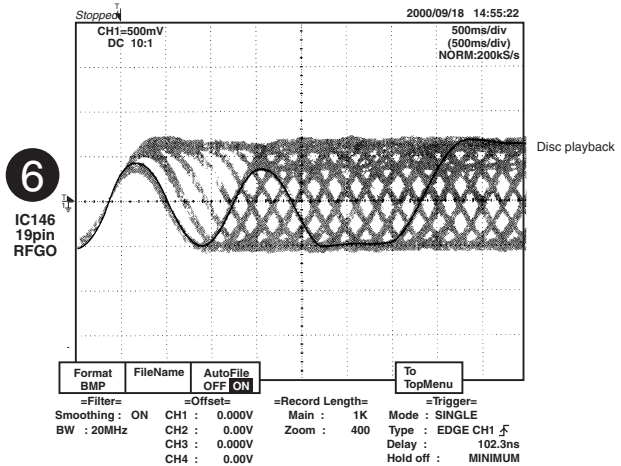
Focus servo on



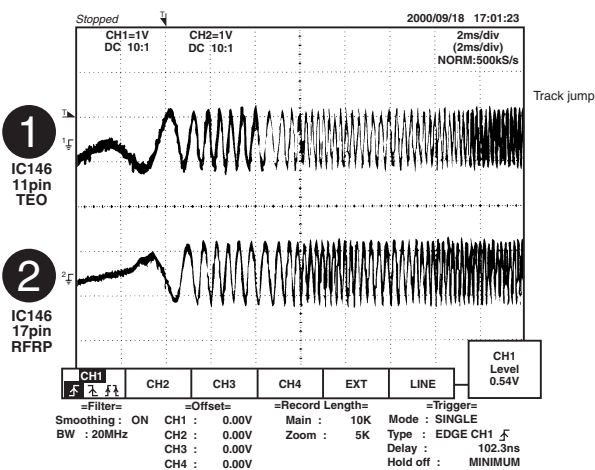
Tracking



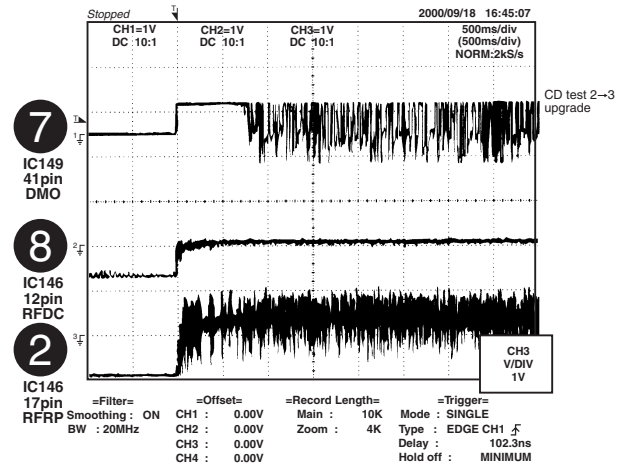
RF



During the tracking jump TEO, RFRP



Disc motor and CD related signal

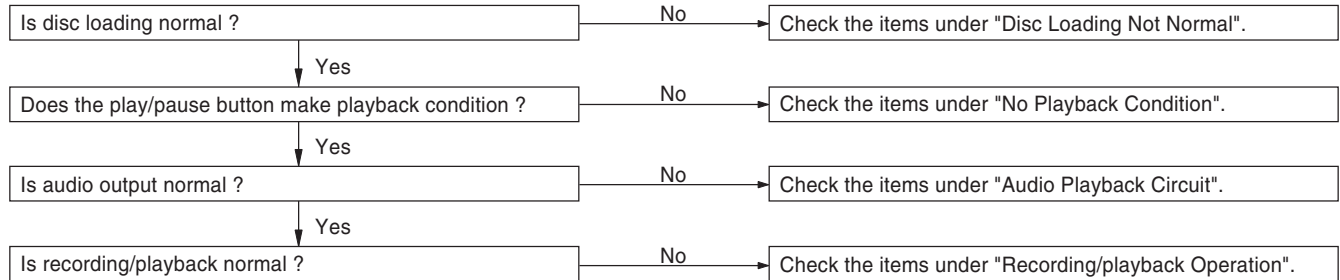


TROUBLESHOOTING OF MD (Hong Kong model)

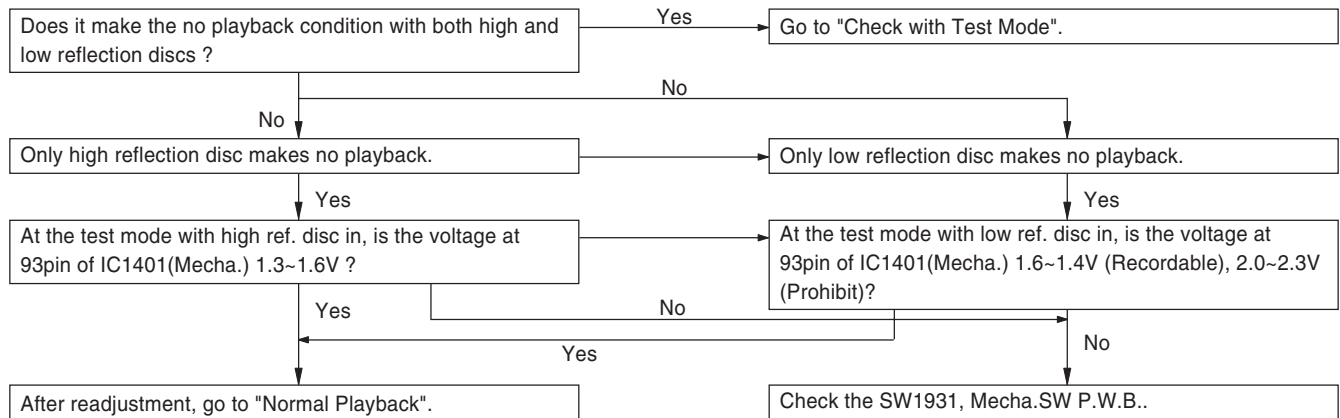
When MD Inoperative

Clean the object lens first then check the playback function because no operation may be caused by dirty object lens of the optical pickup. Follow the steps below if it's still inoperative after the cleaning. When the object lens is unclean with dust or etc., problems such as skipping or no TOC indication may happen. Check whether the lens is clean or not before adjustment, and clean as follows if it's dirty.

- Turn off the power, and wipe the lens with a lens cleaning paper moistened with isopropile alcohol. Pay attention not to scratch and not to touch the lens directly.

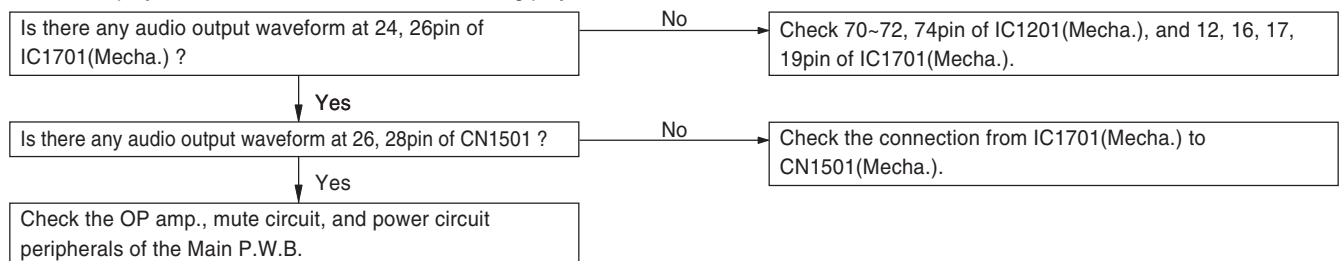


No Playback Condition

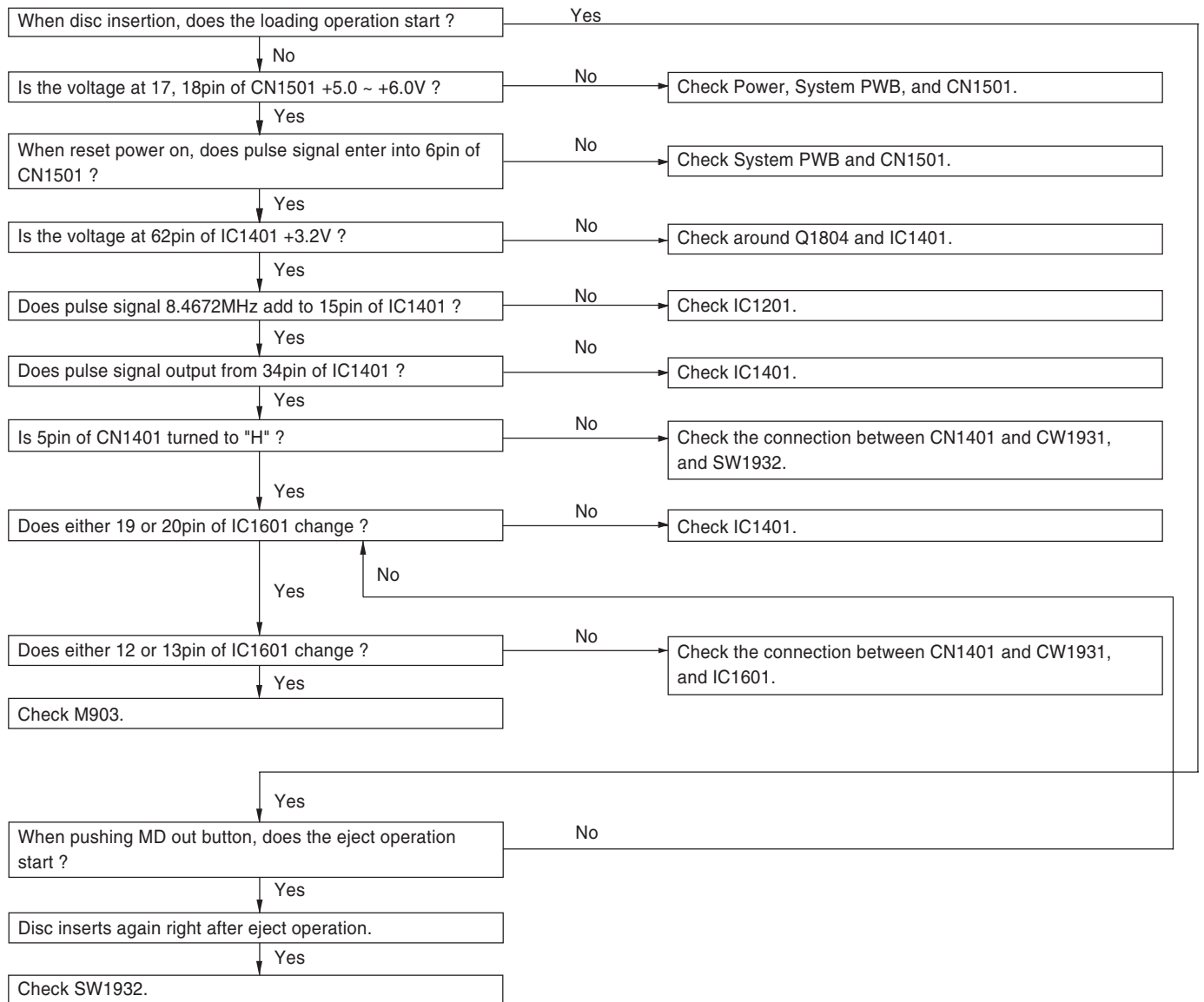


Audio Playback Circuit

In case of playback, time advance but no sound during playback.

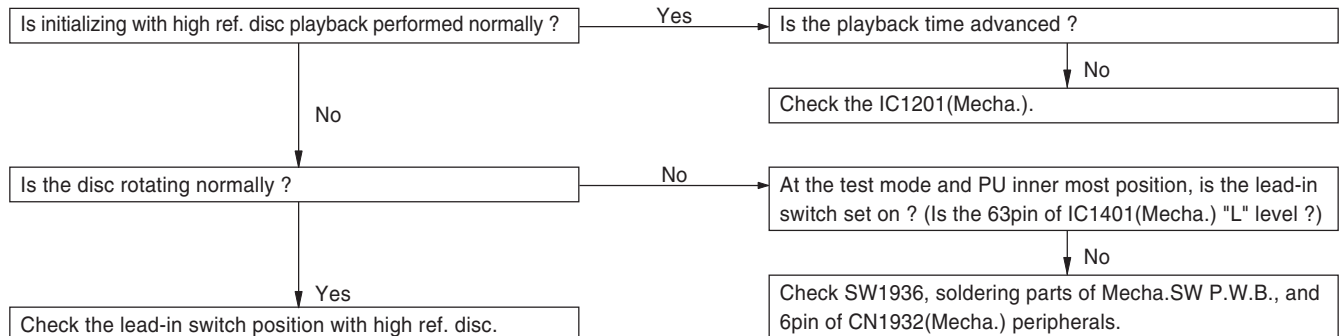


Disc Loading Not Normal



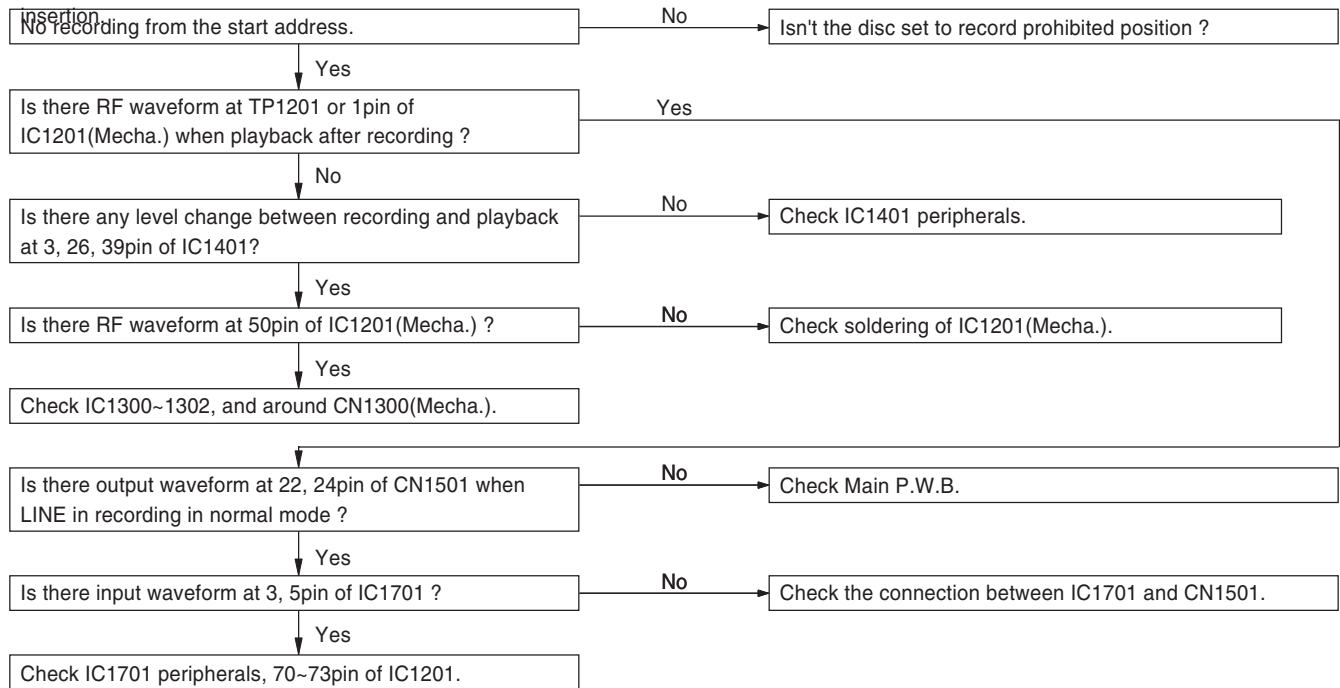
Normal Playback

In case of the value of EEPROM is verified with the test mode.

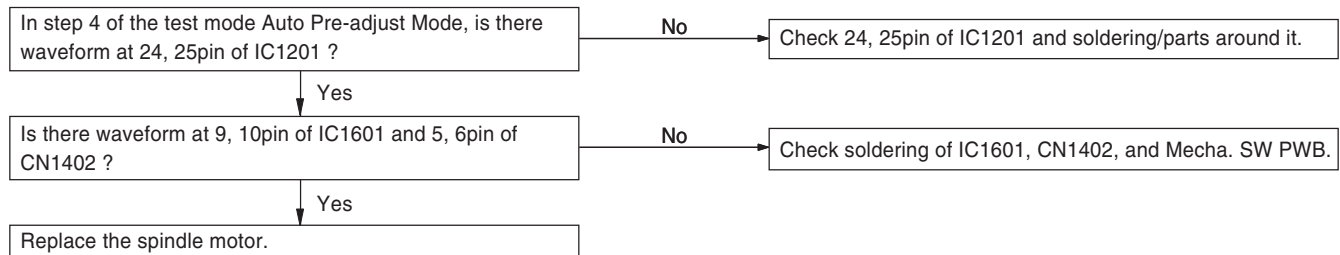


Recording/playback Operation

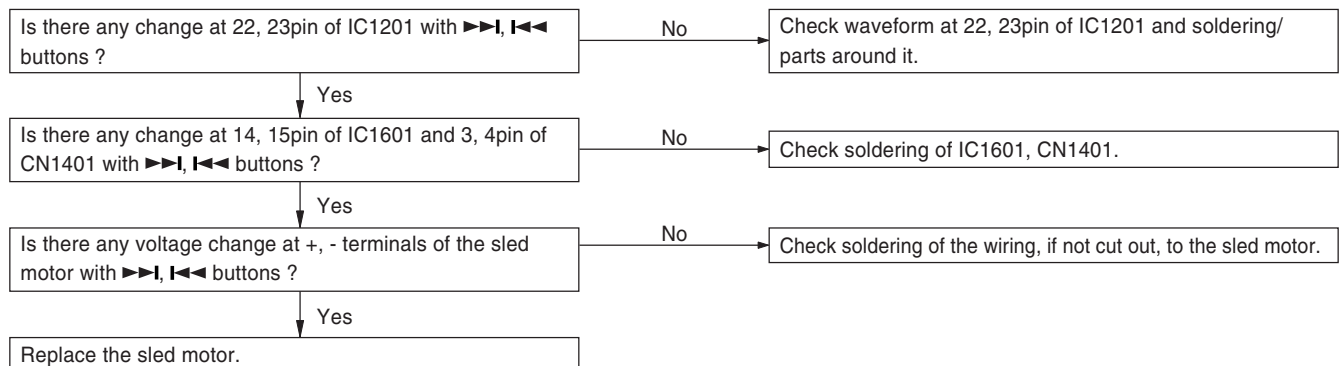
Set to Rec/play Test Mode after confirming audio output at playback with low ref. disc



No Rotation of Spindle Motor

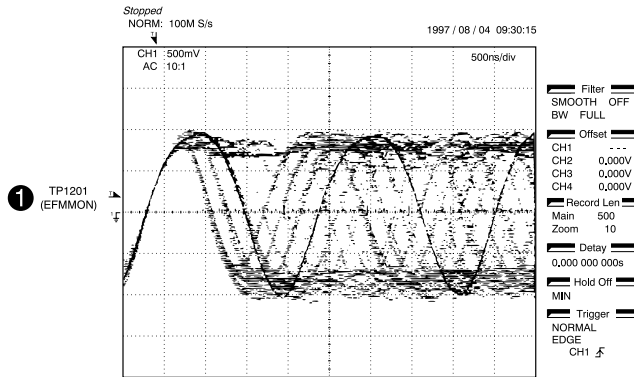


No Rotation of Sled Motor

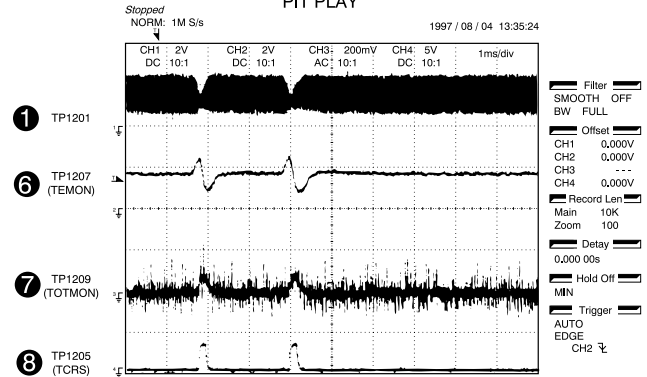


WAVEFORMS OF MD CIRCUIT (Hong Kong model)

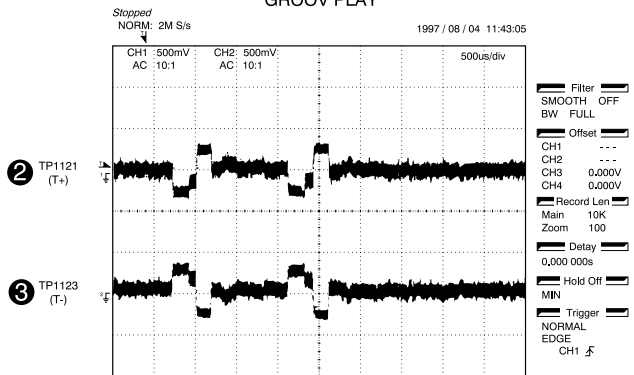
PLAY STATE



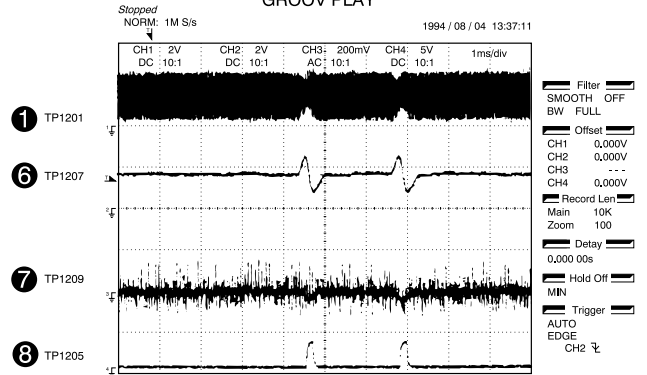
PIT PLAY



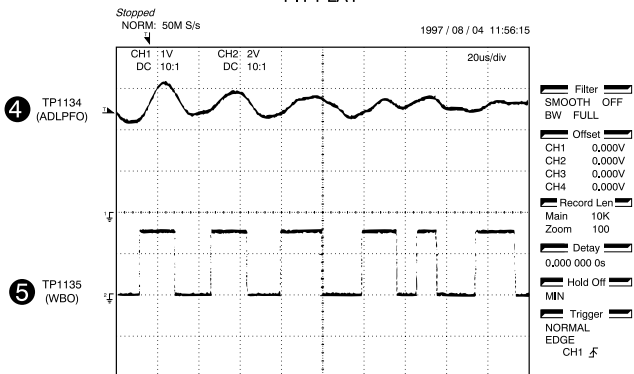
GROOV PLAY



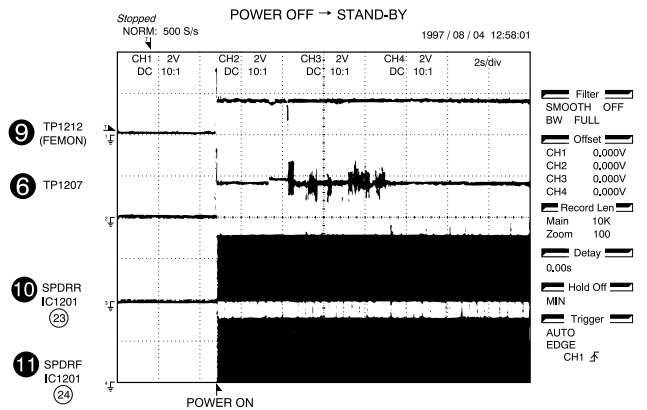
GROOV PLAY



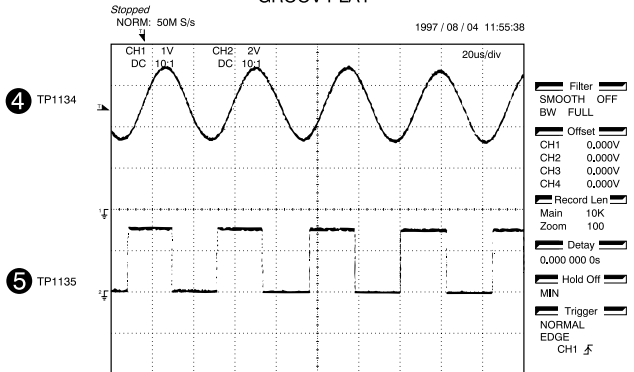
PIT PLAY



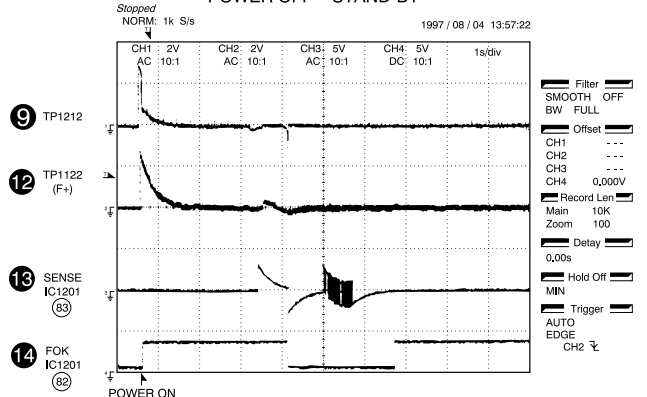
POWER OFF → STAND-BY

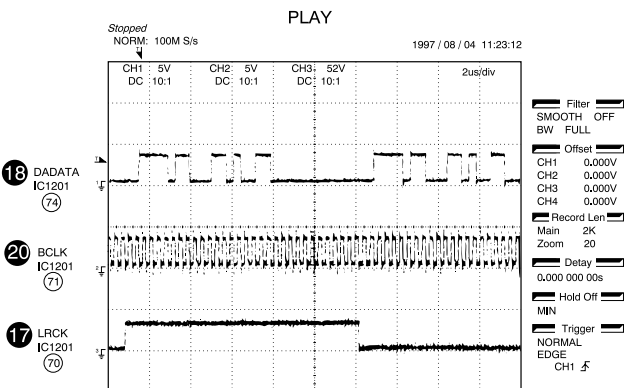
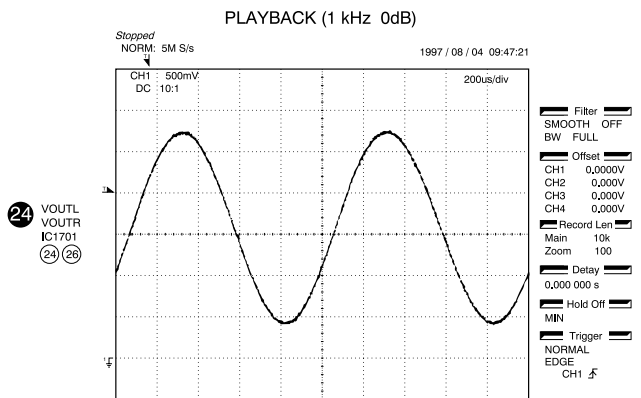
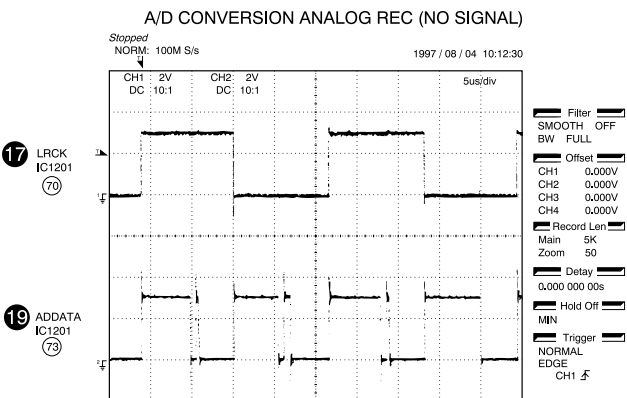
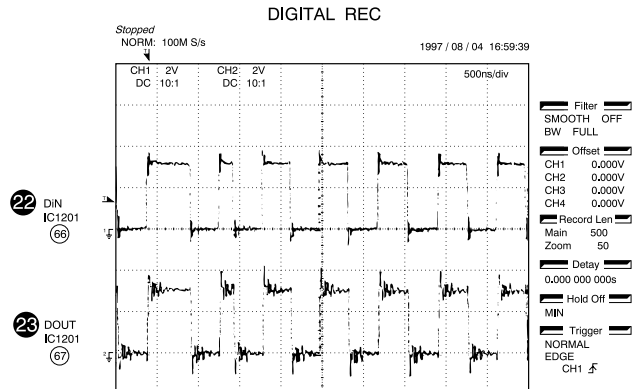
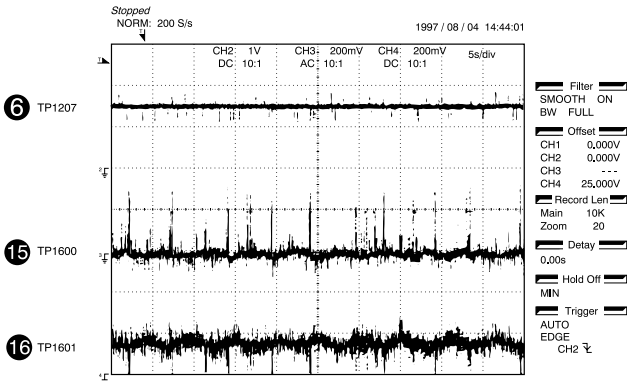
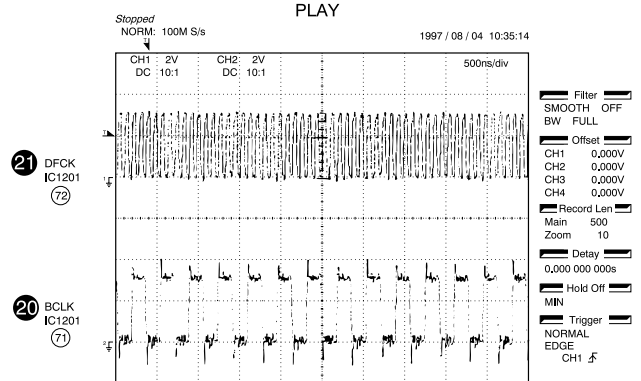
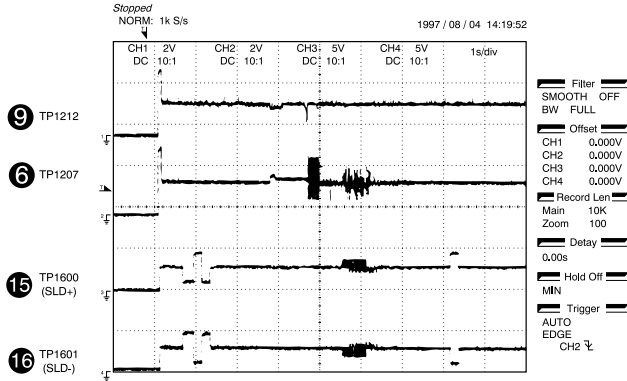


GROOV PLAY



POWER OFF → STAND-BY





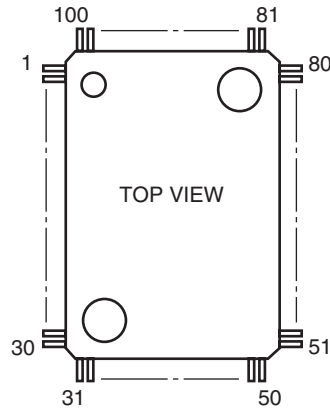
SEMICONDUCTORS

● IC's

M38199 (IC601)

E1H (1~600) M38199MP-276 (262 2963 206)

E3, E1H (600~) M38199MP-285 (262 2963 303)

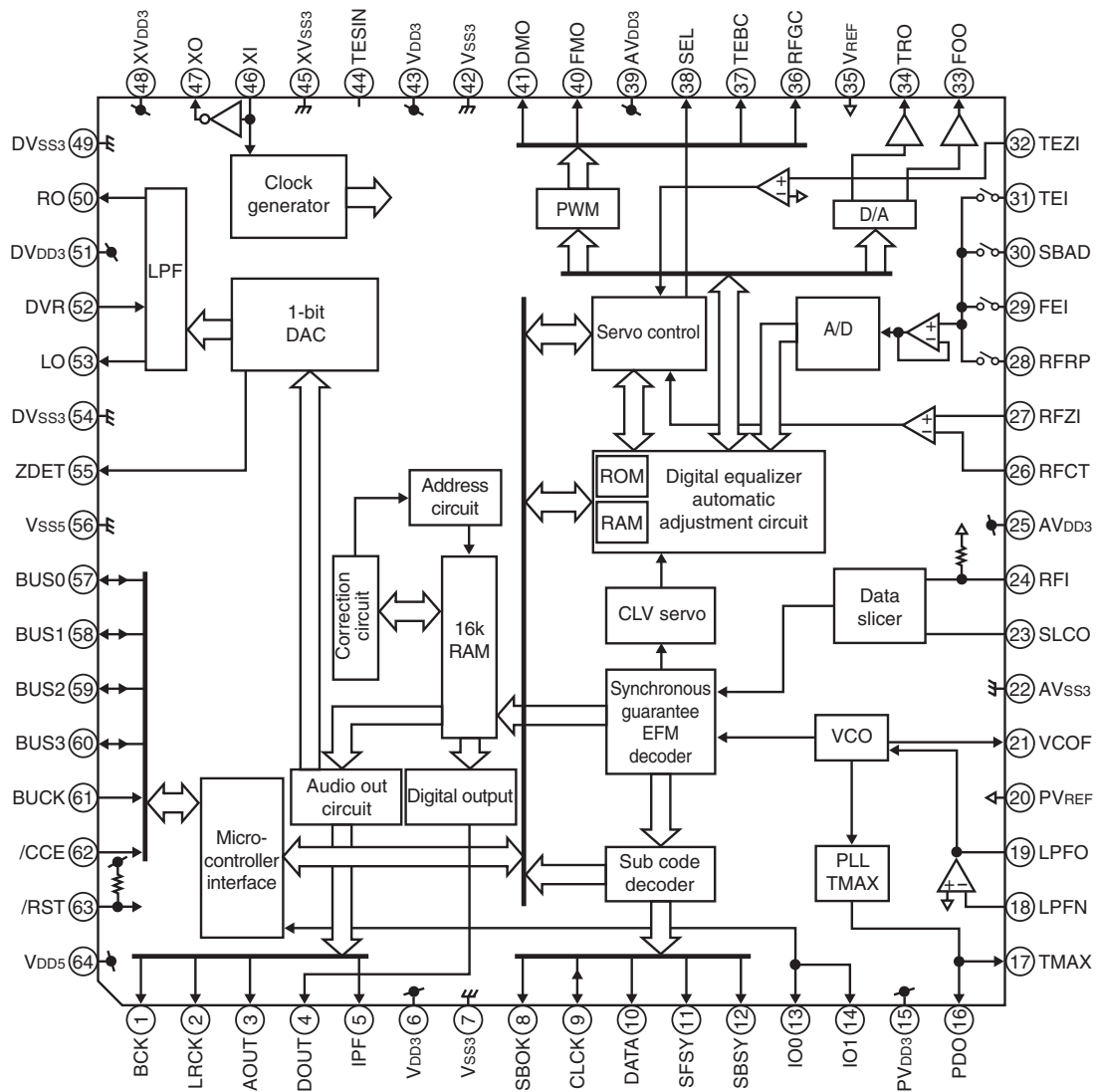


M38199 Terminal Function

Pin No.	Pin Name	Symbol	I/O	Function	Voltage (V)
1	P77/AN7	CD_OP/CL_SENS	I(A/D)	OPEN/CLOSE Motor voltage switch	0
2	P76/AN6	KEY1	I(A/D)	A/D KEY input 1	5
3	P75/AN5	KEY2	I(A/D)	A/D KEY input 2	5
4	P74/AN4	KEY3	I(A/D)	A/D KEY input 3	5
5	P73/AN3	P-DOWN	O	Vref power control, H: Normal, L: P. down	5
6	P72/AN2	TUNER_SM	I(A/D)	Tuner tuned level detect	5
7	P71/AN1	PROTECT	I(A/D)	Abnormal detect, L: Abnormal	5
8	P70/AN0	SPAN	I(A/D)	Frequency SPAN switch	0
9	PB3	POWER	O	Power ON/OFF, H: ON, L: STANDBY	5
10	PB2/DA	H.P_SW	I	H/P detect SW, H: H/P, L: SP	0
11	P57/SRDY3/AN15	LCD_LCK	O	Chip enable for LC75811W	—
12	P56/SCLK3/AN14	LCD_CLK	O	Clock for LC75811W	—
13	P56/SOUT3/AN13	LCD_DI	O	Data output for LC75811W	—
14	P54/SIN3/AN12	OEM	I	Distinction between DENON & W products, L: DENON	0
15	P53/SRDY2/AN11	MD_LOAD_SW	I	MD LOAD SW detect, L→H: DISC IN	5
16	P52/SCLK2/AN10	MD_ST	O	20ms H at CD music start, 100ms H at MD ON	0
17	P51/SOUT2/AN9	MD_SEARCH	O	L: When CD play, H: Others	5
18	P50/SIN2/AN8	MD_RESET	O	MD RESET output	—
19	P67/SRDY1/CS/SCLK12	MD_D_STB	I	MD strobe input	—
20	P66/SCLK11	MD_D_SCK	O	MD CLOCK output	—
21	P65/SOUT1	MD_KDATA	O	MD KEY DATA	—
22	P64/SIN1	MD_DATA	I	MD DATA input	—
23	P63/CNTR1	CD_BUS3	I/O	CD I/F data in/output 3, L fixed when other than CD	4.7
24	P62/CNTR0	CD_BUS2	I/O	CD I/F data in/output 2, L fixed when other than CD	4.7
25	P61/PWM	CD_BUS1	I/O	CD I/F data in/output 1, L fixed when other than CD	4.8
26	P60	CD_BUS0	I/O	CD I/F data in/output 0, L fixed when other than CD	4.7
27	P47/T3OUT	CD_BUCK	O	CD I/F data in/output, L fixed when other than CD	4.8
28	P46T1OUT	CD_CCE	O	CD I/F CCE output, L fixed when other than CD	4.7
29	P45/INT1/ZCR	MODEL	I	MODEL detect, L: A3Xmd, H: A3XCD	0
30	P44/INT4	LCD_RESET	O	LC75811W reset output, L: Reset	4.3
31	P43/INT3	IC_CLK	O	Clock for external control IC	0
32	P42/INT2	REMOCON_IN	I	Remote input	5
33	P41/INT1	IC_DI	O	Data output for external control IC	0
34	P40/INT0	SYS_STOP	I	Power down detect input, L: P. down	5
35	RESET	RESET	I	mcom reset input	4.8
36	PB1/XCIN	IC_CE	O	Chip enable for external control IC	—
37	PB0/XCOUT	IC_DO	I	Data input for external control IC	—
38	XIN	X_IN	I	Osc. input 8.38MHz	—

Pin No.	Pin Name	Symbol	I/O	Function	Voltage (V)
39	XOUT	X_OUT	O	Osc. output 8.38MHz	—
40	Vss	Vss	GND	GND	4.6
41	P27	Surround	O	Surround ON/OFF, H: ON	0
42	P26	/CD_PU_IN	I	CD PU inner most detect, L: Inner most	5.0
43	P25	/DR_OP_IN	I	CD DOOR open switch detect, L: OPEN	5.0
44	P24	/DR_CL_IN	I	CD DOOR close switch detect, L: CLOSE	0
45	P23/DIG19	/SYS_MUTE	O	Pre-amp MUTE, L: ON	4.96
46	P22/DIG18	/CD_RESET	O	CD RESET output, H: When other than CD	0
47	P21/DIG17	SP_MUTE	O	Power amp MUTE, L: ON	4.96
48	P20/DIG16	DR_M-	O	Door MOTOR control, at CLOSE H PULSE	—
49	P17/DIG15	DR_M+	O	Door MOTOR control, at OPEN H PULSE	—
50	P16/DIG14	/CD_FUNC	O	CD power control, H: Other than CD	0
51	P15/DIG13	SDB	O	SDB switching, 81pin operate at H, H: ON	0
52	P14/DIG12	P14	O	L: Output fixed	0
53	P13/DIG11	P13	O	L: Output fixed	0
54	P12/DIG10	P12	O	L: Output fixed	0
55	P11/DIG9	P11	O	L: Output fixed	0
56	P10/DIG8	P10	O	L: Output fixed	0
57	P07/DIG7	P07	O	L: Output fixed	0
58	P06/DIG6	P06	O	L: Output fixed	0
59	P05/DIG5	P05	O	L: Output fixed	0
60	P04/SEG36/DIG4	P04	O	L: Output fixed	0
61	P03/SEG35/DIG3	P03	O	L: Output fixed	0
62	P02/SEG34/DIG2	P02	O	L: Output fixed	0
63	P01/SEG33/DIG1	P01	O	L: Output fixed	0
64	P00/SEG32/DIG0	P00	O	L: Output fixed	0
65	P37/SEG31	P37	O	L: Output fixed	0
66	P36/SEG30	P36	O	L: Output fixed	0
67	P35/SEG29	P35	O	L: Output fixed	0
68	P34/SEG28	P34	O	L: Output fixed	0
69	P33/SEG27	P33	O	L: Output fixed	0
70	P32/SEG26	P32	O	L: Output fixed	0
71	P31/SEG25	P31	O	L: Output fixed	0
72	P30/SEG24	P30	O	L: Output fixed	0
73	P97/SEG23	P97	O	L: Output fixed	0
74	P96/SEG22	P96	O	L: Output fixed	0
75	P95/SEG21	P95	O	L: Output fixed	0
76	P94/SEG20	P94	O	L: Output fixed	0
77	P93/SEG19	P93	O	L: Output fixed	0
78	P92/SEG18	P92	O	L: Output fixed	0
79	P91/SEG17	P91	O	L: Output fixed	0
80	P90/SEG16	P91	O	L: Output fixed	0
81	P87/SEG15	SDB	I	SDB switching, L: 75342M use, H: 51pin L/H	0
82	P86/SEG14	P86	O	L: Output fixed	0
83	P85/SEG13	P85	O	L: Output fixed	0
84	P84/SEG12	P84	O	L: Output fixed	0
85	P83/SEG11	P83	O	L: Output fixed	0
86	P82/SEG10	P82	O	L: Output fixed	0
87	P81/SEG09	P81	O	L: Output fixed	0
88	P80/SEG08	P80	O	L: Output fixed	0
89	PA7/SEG07	PA7	O	L: Output fixed	0
90	PA6/SEG06	PA6	O	L: Output fixed	0
91	Vcc	VCC	I	+5v	5
92	PA5/SEG05	PWB_test	I	H: PWB check MODE, L: Normal	0
93	PA4/SEG04	PA4	O	L: Output fixed	0
94	PA3/SEG03	PA3	O	L: Output fixed	0
95	PA2/SEG02	PA2	O	L: Output fixed	0
96	PA1/SEG01	LCD_RESET	O	LC35811W reset output, L: reset	5
97	PA0/SEG00	Door cont	I	Door control switch, H: Fixed	5
98	VEE	VEE	I	GND	0
99	AVss	AVSS	I	GND	0
100	VREF	Vref	I	+5V	5

TC94A14FA (IC149)

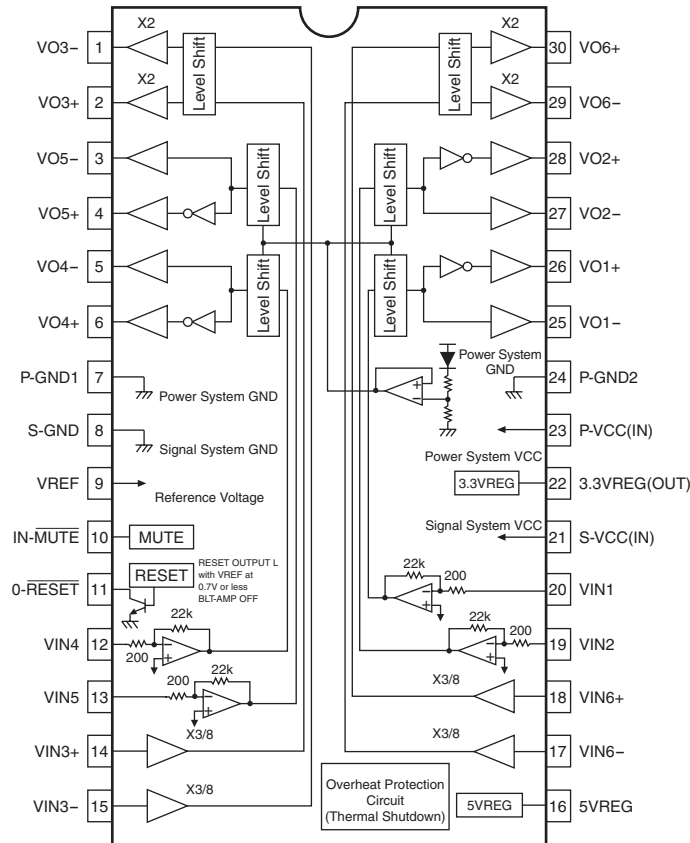


TC94A14FA Terminal Function

Pin No.	Symbol	I/O	Function
1	BCK	O	Bit clock output pin.
2	LRCK	O	L/R channel clock output pin.
3	AOUT	O	Audio data output pin.
4	DOUT	O	Digital data output pin.
5	IPF	O	Correction flag output pin.
6	V _{DD3}	—	Digital 3.3V power supply voltage pin.
7	V _{SS3}	—	Digital GND pin.
8	SBOK	O	Subcode Q data CRCC result output pin.
9	CLCK	I/O	Subcode P-W data read clock I/O pin.
10	DATA	O	Subcode P-W data output pin.
11	SFSY	O	Playback frame sync signal output pin.

Pin No.	Symbol	I/O	Function
12	SBSY	O	Subcode block sync signal output pin.
13	IO0	I/O	General-purpose input/output pins.
14	IO1		Input port at reset.
15	PVDD3	—	PLL-only 3.3V power supply voltage pin.
16	PDO	O	EFM and PLCK phase difference signal output pin.
17	TMAX	O	TMAX detection result output pin.
18	LPFN	I	Inverted input pin for PLL LPF amp.
19	LPFO	O	Out put pin for PLL LPF amp.
20	PVREF	—	PLL-only VREF pin.
21	VCOF	O	VCO filter pin.
22	AVSS3	—	Analog GND pin.
23	SLCO	O	DAC output pin for data slice level generation.
24	RFI	I	RF signal input pin.
25	AVDD3	—	Analog 3.3V power supply voltage pin.
26	RFCT	I	RFRP signal center level input pin.
27	RFZI	I	RFRP signal zero-cross input pin.
28	RFRP	I	RF ripple signal input pin.
29	FEI	I	Focus error signal input pin.
30	SBAD	I	Sub-beam adder signal input pin.
31	TEI	I	Tracking error input pin.
32	TEZI	I	Tracking error signal zero-cross input pin.
33	FOO	O	Focus equalizer output pin.
34	TRO	O	Tracking equalizer output pin.
35	VREF	—	Analog reference power supply voltage pin.
36	RFGC	O	RF amplitude adjustment control signal output pin.
37	TEBC	O	Tracking balane control signal output pin.
38	SEL	O	APC circuit ON/OFF signal output pin.
39	AVDD3	—	Analog 3.3V power supply voltage pin.
40	FMO	O	Feed equalizer output pin.
41	DMO	O	Disc equalizer output pin.
42	VSS3	—	Digital GND pin.
43	VDD3	—	Digital 3.3V power supply voltage pin.
44	TESIN	I	Test input pin. Normally, fixed to "L".
45	XVSS3	—	System clock oscillator GND pin.
46	XI	I	System clock oscillator input pin.
47	XO	O	System clock oscillator output pin.
48	XVDD3	—	System clock oscillator 3.3V power supply voltage pin.
49	DVSS3	—	DA converter GND pin.
50	RO	O	R-channel data forward output pin.
51	DVDD3	—	DA converter 3.3V power supply pin.
52	DVR	—	Reference voltage pin.
53	LO	O	L-channel data forward output pin.
54	DVSS3	—	DA converter GND pin.
55	ZDET	O	1 bit DA converter zero data detectin flag output pin.
56	VSS5	—	Microcontroller interface GND pin.
57	BUS0	I/O	Microcontroller interface data I/O pins.
58	BUS1		
59	BUS2		
60	BUS3		
61	BUCK	I	Microcontroller interface clock input pin.
62	/CCE	I	Microcontroller interface chip enable signal input pin.
63	/RST	I	Reset signal input pin. At reset, "L".
64	VDD5	—	Microcontroller interface 5V power supply pin.

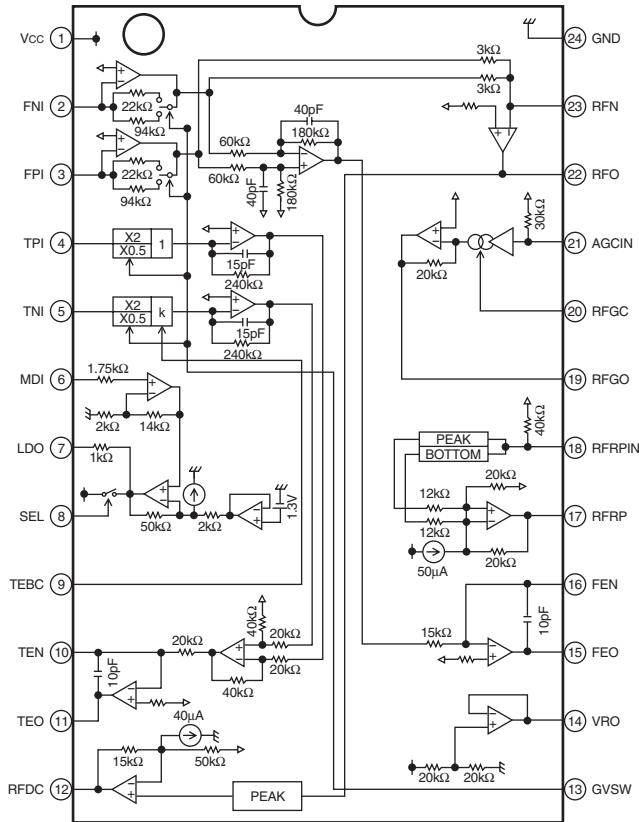
LA6558 (IC145)



LA6558 Terminal Function

Pin No.	Pin Name	Description (functions)	Voltage (V)
1	VO3-	Output for CH3 (-)	4
2	VO3+	Output for CH3 (+)	4
3	VO5-	Output for CH5 (-), inverted relative to input	3.6
4	VO5+	Output for CH5 (+), not inverted relative to input	3.6
5	VO4-	Output for CH4 (-), inverted relative to input	3.6
6	VO4+	Output for CH4 (+), not inverted relative to input	3.6
7	P-GND1	Power system GND (CH3, 4, 5)	0
8	S-GND	Signal system GND	0
9	VREF	Reference voltage input pin	1.7
10	IN-MUTE	Output ON/OFF for BTL AMP (CH1, 2, 4, and 5) and 3.3V, 5 VREG. ([H]: Output ON, [L]: Output OFF)	5.36
11	O-RESET	Reset output (Open collector)	0
12	VIN4	Input for CH4	1.7
13	VIN5	Input for CH5	1.7
14	VIN3+	Input for CH3 (+)	0
15	VIN3	Input for CH3 (-)	0
16	5VREC	5V Power output	5
17	VIN6-	Input for CH6 (-)	0
18	VIN6+	Input for CH6 (+)	0
19	VIN2	Input for CH2	1.7
20	VIN1	Input for CH1	1.7
21	S-VCC	Signal system VCC	8
22	3.3REC	3.3 Power output	3.3
23	P-VCC	Power system supply	8
24	P-GND2	Power system GND (CH1, 2, 6)	0
25	VO1-	Output for CH1 (-), inverted relative to input	3.6
26	VO1+	Output for CH1 (+), not inverted relative to input	3.6
27	VO2-	Output for CH2 (-), inverted relative to input	3.6
28	VO2+	Output for CH2 (+), not inverted relative to input	3.6
29	VO6-	Output for CH6 (-)	4
30	VO6+	Output for CH6 (+)	4

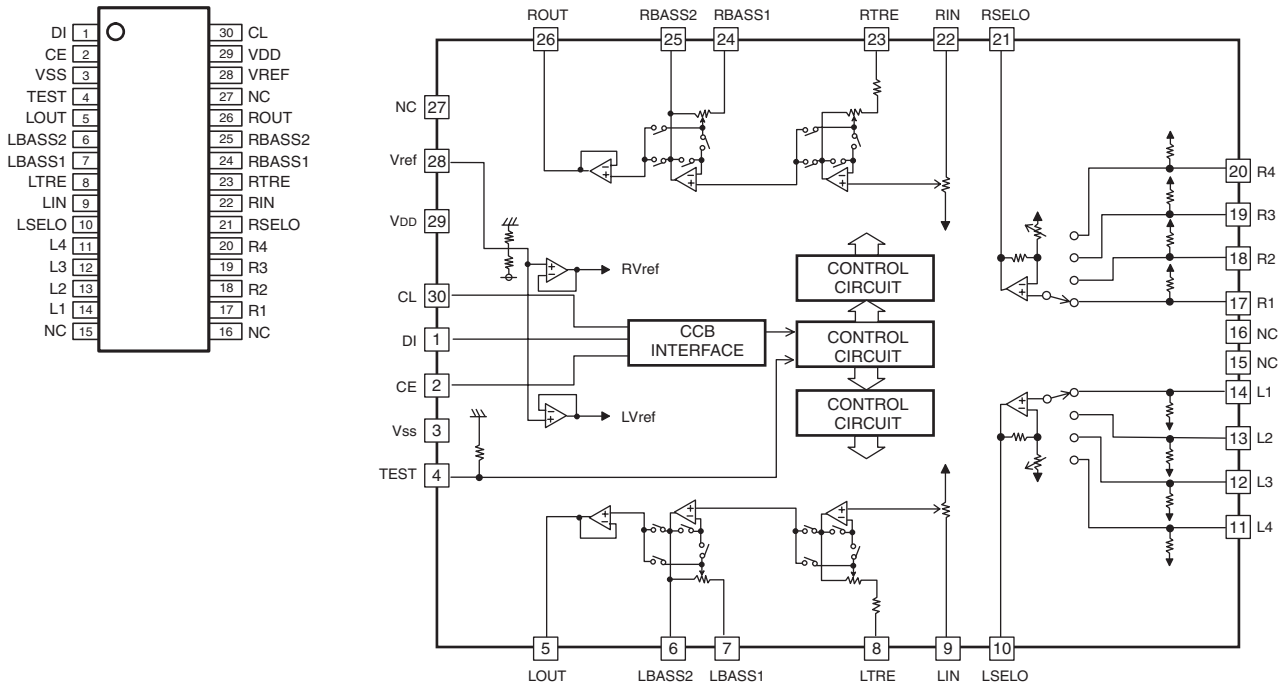
TA2157F (IC146)



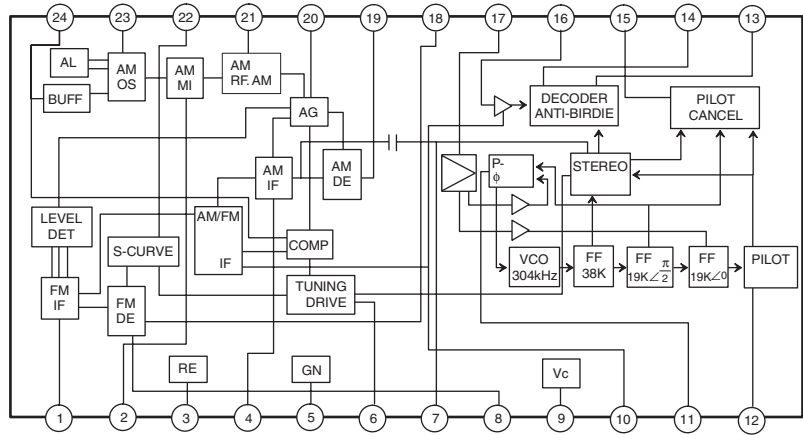
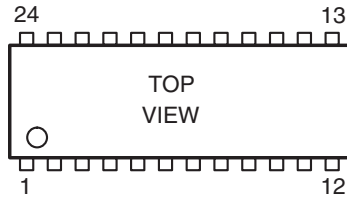
TA2157F Terminal Function

Pin No.	Symbol	I/O	Description	Voltage (V)
1	Vcc	—	3.3 power pin	3.3
2	FNI	I	Main beam amp input	1.65
3	FPI	I	Main beam amp input	1.65
4	TPI	I	Sub beam amp input	1.65
5	TNI	I	Sub beam amp input	1.65
6	MDI	I	Monitor photo diode amp input	0
7	LDO	O	Laser diode amp output	2.67
8	SEL	I	APC on/off sig., LDO pin cont. input and bottom/peak detect f switching	1.65
9	TEBC	I	Tracking error bal. sig. input	1.75
10	TEN	I	Tracking error sig. gen. amp (-) input	1.65
11	TEO	O	Tracking error sig. gen. amp output	1.65
12	RFDC	O	RF sig. peak detection output	1.5
13	GVSW	I	AGC, FE, TE amp gain switching	2.1
14	VRO	O	Ref. V (VRO) output	1.65
15	FEO	O	Focus error sig. gen. amp output	1.65
16	FEN	I	Focus error sig. gen. amp (-) input	1.65
17	RFRP	O	Tracking count sig. gen. amp output	0.75
18	RFRPIN	I	Tracking count sig. gen. amp input	1.65
19	RFGO	O	RF sig. amplitude adj. amp output	1.23
20	RFGC	I	RF amplitude adj. cont. sig. input	1.62
21	AGCIN	I	RF sig. amplitude adj. amp input	2.39
22	RFO	O	RF sig. gen. amp output	1.1
23	RFN	I	RF sig. gen. amp input	1.65
24	GND	—	GND pin	0

LC75342M (IC315)



LA1844 (IC402)



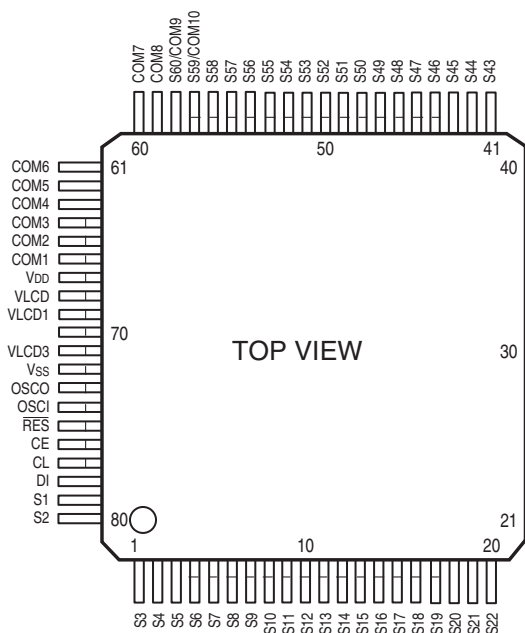
● LA1844 Terminal Function

Pin No.	Function	Voltage (V)
1	FM IF input	2.34
2	AM MIX output	5.14
3	REG	2.33
4	AM IF input	2.32
5	GND	0
6	Tu-LED	—
7	ST-LED, IF-out for AM stereo	—
8	FM-DET	—
9	Vcc	5.15
10	AM/FM IF count out, control SW, mute SW	0
11	Phase comparator filter, FM/AM switch	4.06 (1.56)
12	Pilot detector filter, forcible mono, Vcc stop	4.14 (2.60)

Pin No.	Function	Voltage (V)
13	L output	3.17
14	R output	3.17
15	Pilot cancel output	2.27
16	Decoder input	2.33
17	PLL input	2.08
18	FM demodulator output	2.83
19	AM detector output	(1.6)
20	S-meter, AM AGC	1.1
21	AM RF-IN	2.6
22	AFC	2.55
23	OSC	5.17
24	OSC buffer, FM SD adjust	3.16

* Normally at FM (at AM)

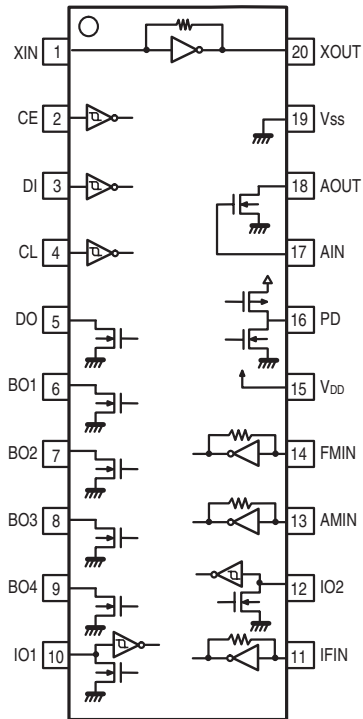
LC75811W (IC501)



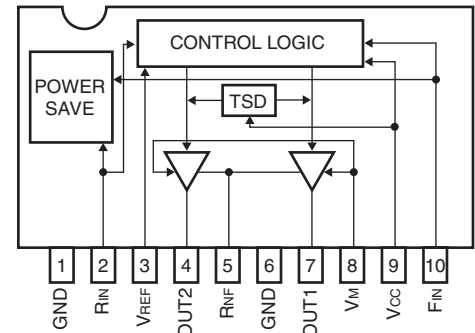
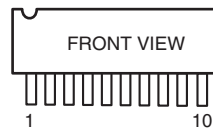
● LC75811W Terminal Function

Pin No.	I/O	Function
1~56	O	Segment driver output
57	O	Segment driver output
58	O	Segment driver output
59~66	O	Common driver output
67	—	Power supply for logic block
68	—	Power supply for LCD
69	I	For LCD drive bias 3/4V external apply
70	I	For LCD drive bias 2/4V external apply
71	I	For LCD drive bias 1/4V external apply
72	—	Power supply pin
73	O	Pin for oscillator
74	I	Pin for oscillator
75	I	Reset signal input
76	I	Input for serial data transfer CE: Chip enable, CL: Sync clock, DI: Transfer data
77	I	Input for serial data transfer CE: Chip enable, CL: Sync clock, DI: Transfer data
78	I	Input for serial data transfer CE: Chip enable, CL: Sync clock, DI: Transfer data
79, 80	O	Segment driver output

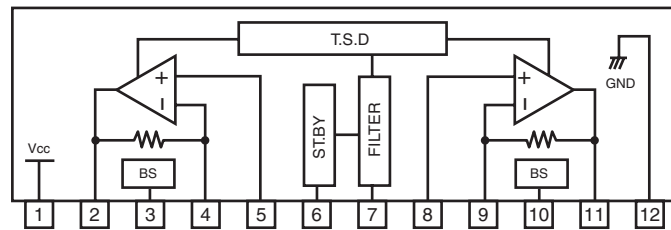
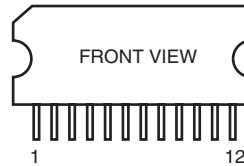
LC72131M (IC401)



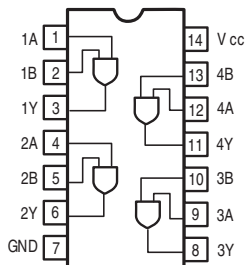
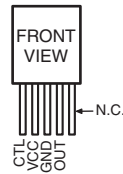
BA6286 (IC151)



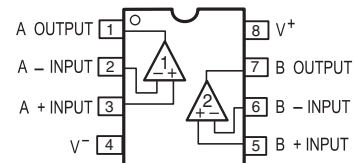
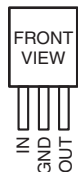
BA5415A (IC707)



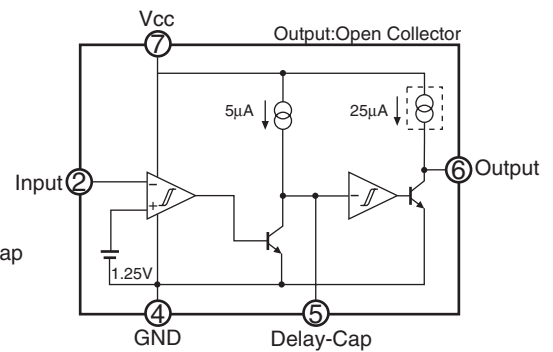
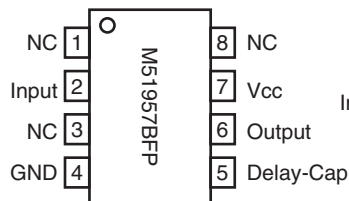
74VHC08F (IC150)

BA08ST (IC703)
BA10ST (IC701)

BA15218F (IC605)

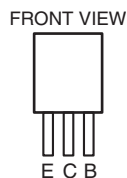
NJM7805FA (IC702)
NJM7806FA (IC704)

M51957FP (SY1)

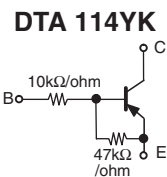
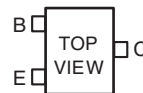


● TRANSISTORS

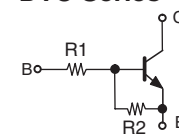
2SC1740S
2SC536GSP
HIT5610



2SA1037K
2SA1179
2SC2411K
2SC2412K
2SC2413K
DTA114YK
DTC114EK
DTC114YK
DTC323TK



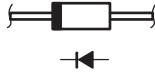
DTC Series



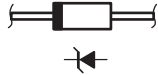
	R1	R2
DTC114EK	10kΩ/ohm	10kΩ/ohm
DTC114YK	10kΩ/ohm	47kΩ/ohm
DTC323TK	2.2kΩ/ohm	-

● DIODES

1N4004
1N4148
1N5404



MTZJ5P6B
MTZJ6P2A
MTZJ7P5A



SVC321SP

FRONT VIEW



● REMOTE CONTROL SENSOR

RPM6938-V4 (IC604)

TOP VIEW



● IC PROTECTOR

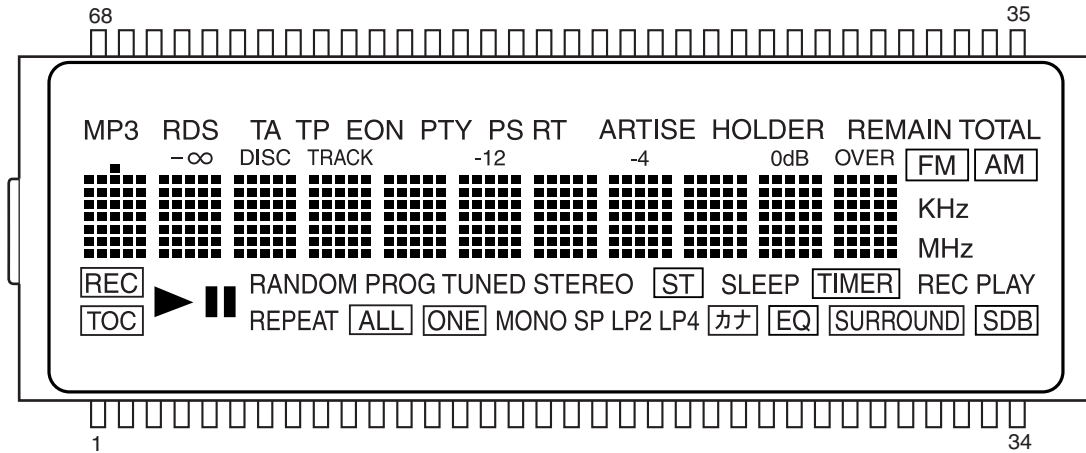
ICP-N10T (IC152,153)

FRONT VIEW



● LC DISPLAY

TSB0716-UGTDPW (FL501)



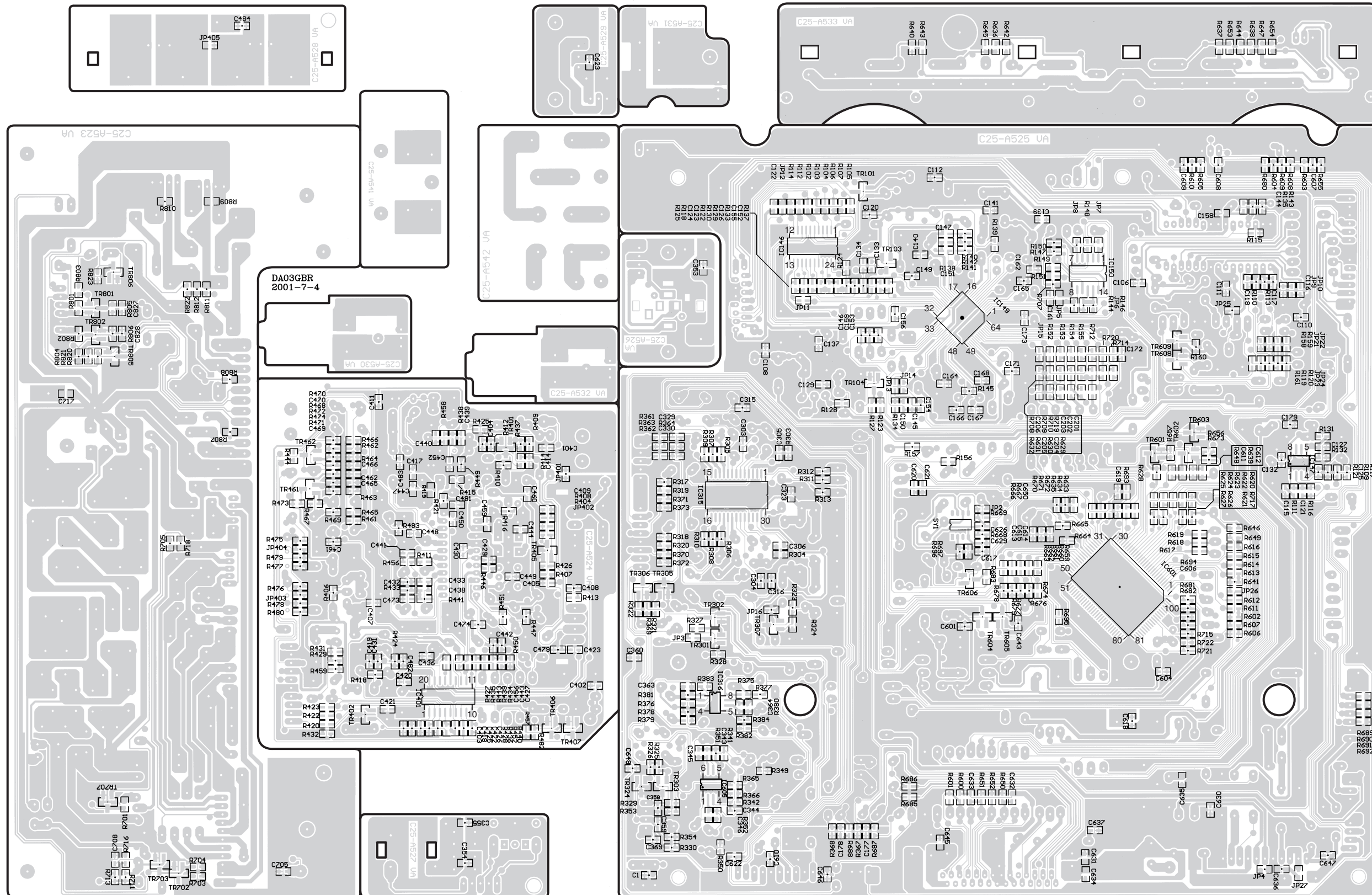
Pin Connection

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
Connection	C5	C6	C7	C8	S31	S32	S33	S34	S35	S36	S37	S38	S39	S40	S41	S42	S43	S44	S45	S46	S47	S48	S49	S50	S51	S52	S53	S54	S55	S56	S57	S58	S59	S60

Pin No.	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
Connection	S30	S29	S28	S27	S26	S25	S24	S23	S22	S21	S20	S19	S18	S17	S16	S15	S14	S13	S12	S11	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	C4	C3	C2	C1

47

Top view of the PCB showing components JP405, C484, and C25-AR28 UA.



48

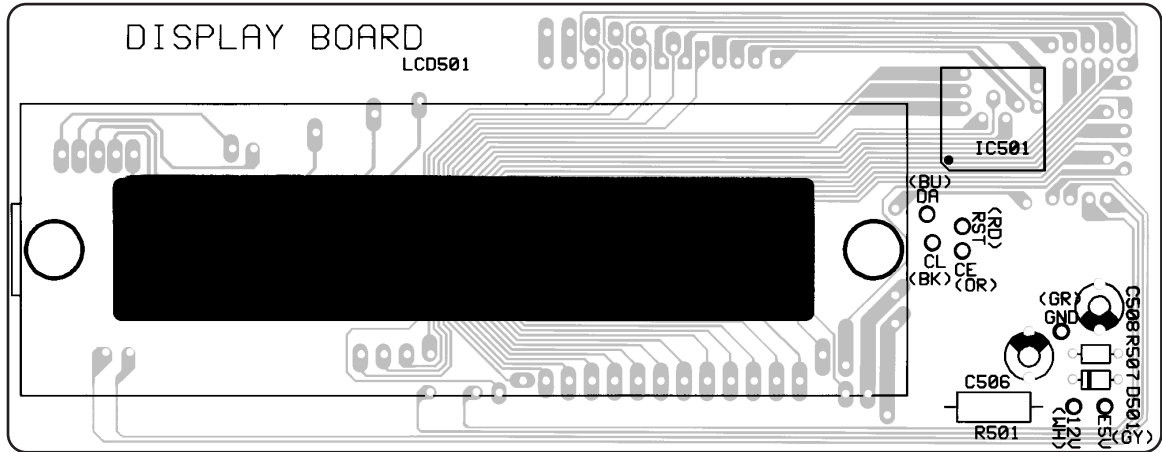
1

2

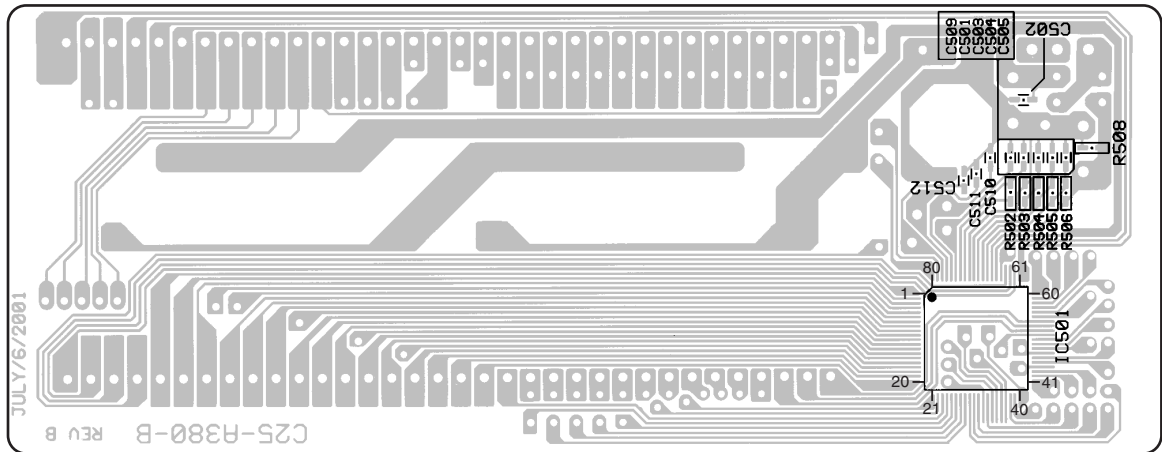
3

4

DISPLAY P.W.B. UNIT Ass'y



COMPONENT SIDE



FOIL SIDE

A

B

C

D

E

NOTE FOR PARTS LIST

- Part indicated with the mark "⊙" are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- When ordering of part, clearly indicate "1" and "I" (i) to avoid mis-supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film $\pm 5\%$, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

WARNING:

Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

● Resistors

Ex.: RN 14K 2E 182 G FR
Type Shape Power Resist- Allowable Others
 and per- ance error
 formance

RD : Carbon	2B : 1/8W	F : $\pm 1\%$	P : Pulse-resistant type
RC : Composition	2E : 1/4W	G : $\pm 2\%$	NL : Low noise type
RS : Metal oxide film	2H : 1/2W	J : $\pm 5\%$	NB : Non-burning type
RW : Winding	3A : 1W	K : $\pm 10\%$	FR : Fuse-resistor
RN : Metal film	3D : 2W	M : $\pm 20\%$	F : Lead wire forming
RK : Metal mixture	3F : 3W		
	3H : 5W		

* Resistance

1 8 2 \Rightarrow 1800 ohm = 1.8 kohm
 ↑ ↑
 Indicates number of zeros after effective number.
 2-digit effective number.

- Units: ohm

1 R 2 \Rightarrow 1.2 ohm
 ↑ ↑
 1-digit effective number.
 2-digit effective number, decimal point indicated by R.

- Units: ohm

● Capacitors

Ex.: CE 04W 1H 2R2 M BP
Type Shape Dielectric Capacity Allowable Others
 and per- strength error
 formance

CE : Aluminum foil electrolytic	0J : 6.3V	F : $\pm 1\%$	HS : High stability type
CA : Aluminum solid electrolytic	1A : 10V	G : $\pm 2\%$	BP : Non-polar type
CS : Tantalum electrolytic	1C : 16V	J : $\pm 5\%$	HR : Ripple-resistant type
CQ : Film	1E : 25V	K : $\pm 10\%$	DL : For charge and discharge
CK : Ceramic	1V : 35V	M : $\pm 20\%$	HF : For assuring high frequency
CC : Ceramic	1H : 50V	Z : $\pm 80\%$	U : UL part
CP : Oil	2A : 100V	-20%	C : CSA part
CM : Mica	2B : 125V	P : $\pm 100\%$	W : UL-CSA type
CF : Metallized	2C : 160V	-0%	F : Lead wire forming
CH : Metallized	2D : 200V	C : $\pm 0.25\text{pF}$	
	2E : 250V	D : $\pm 0.5\text{pF}$	
	2H : 500V	= : Others	
	2J : 630V		

* Capacity (electrolyte only)

2 2 2 \Rightarrow 2200 μF
 ↑ ↑
 Indicates number of zeros after effective number.
 2-digit effective number.

- Units: μF .

2 R 2 \Rightarrow 2.2 μF
 ↑ ↑
 1-digit effective number.
 2-digit effective number, decimal point indicated by R.

- Units: μF .

* Capacity (except electrolyte)

2 2 2 \Rightarrow 2200pF=0.0022 μF
 ↑ ↑
 (More than 2)—Indicates number of zeros after effective number.
 2-digit effective number.

- Units: pF.

2 2 1 \Rightarrow 220pF
 ↑ ↑
 (0 or 1)—Indicates number of zeros after effective number.
 2-digit effective number.

- Units: pF.

- When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

PARTS LIST OF P.W.B. UNIT ASS'Y MAIN P.W.B. UNIT ASSY

Note : The symbols in the column "Remarks" indicate the following destinations.
E1H: Hong Kong model
E3 : U.S.A. & Canada model

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP				RESISTORS GROUP			
IC145	951 0062 704	IC LA6558	for E1H	TR805,806	269 0066 902	Transistor DTC323TK	for E1H
IC146	951 0062 908	IC TA2157F		D103	951 0063 101	Diode 1N4148	
IC149	951 0063 004	IC TC94A14FA		D108	951 0063 101	Diode 1N4148	
IC150	951 0062 306	IC 74VHC08F		D401,402	951 0063 101	Diode 1N4148	
IC151	951 0068 504	IC BA6286		D405,406	951 0063 101	Diode 1N4148	
IC152,153	951 0068 601	IC protector ICP-N10T		D407	951 0021 703	Diode SVC321SP	
IC315	951 0011 904	IC LC75342M	for E3	D408	951 0063 101	Diode 1N4148	
IC401	951 0022 906	IC LC72131M		D409	951 0021 703	Diode SVC321SP	
IC402	951 0021 305	IC LA1844		D410,411	951 0063 101	Diode 1N4148	
IC601	262 2963 206	IC M38199MF-276FP 130A102		D601-608	951 0063 101	Diode 1N4148	
IC601	262 2963 303	IC M38199EFFP	for E1H	D702	GP6 0004 002	Diode 1N4004-GD	
IC604	499 0301 006	Remote sensor RPM6938V4		D706-709	951 0021 402	Diode 1N5404-GD	
IC605	951 0068 708	IC BA15218F		D710-713	GP6 0004 002	Diode 1N4004-GD	
IC701	951 0062 500	IC BA10ST		D714	951 0063 101	Diode 1N4148	
IC702	951 0068 805	IC NJM7805FA	for E1H	D801	951 0063 101	Diode 1N4148	
IC703	951 0062 403	IC BA08ST		ZD101	951 0048 003	Zener diode MTZJ5P6B	
IC704	951 0062 801	IC NJM7806FA		ZD103	951 0030 309	Zener diode MTZJ7P5A	
IC707	951 0023 701	IC BA5415A		ZD401	951 0022 401	Zener diode MTZJ6P2A	
SY1	951 0068 902	IC M51957BFP	for E3				
TR101	GP3 8002 021	Transistor 2SA1179		R102	951 9002 901	Carbon chip 47 kohm 1/16W	
TR102	273 0178 022	Transistor 2SC1740R/S		R103,104	951 9002 985	Carbon chip 82 kohm 1/16W	
TR103	GP3 8002 023	Transistor 2SC2412K		R105	951 9002 901	Carbon chip 47 kohm 1/16W	
TR104	269 0082 902	Transistor DTC114EK		R106,107	951 9002 985	Carbon chip 82 kohm 1/16W	
TR301	271 0238 908	Transistor 2SA1037K		R109	951 9002 639	Carbon chip 10 kohm 1/16W	
TR303	GP3 8002 022	Transistor 2SC2411K		R112	951 9002 901	Carbon chip 47 kohm 1/16W	
TR305,306	269 0066 902	Transistor DTC323TK		R114	951 9002 972	Carbon chip 820 ohm 1/16W	
TR307		Transistor 2SC2412K		R115	951 9002 820	Carbon chip 33 kohm 1/16W	
TR324	GP3 8002 022	Transistor 2SC2411K		R118	951 9002 930	Carbon chip 68 kohm 1/16W	
TR401	951 0023 109	Transistor 2SC2413K	for E1H	R119	951 9002 639	Carbon chip 10 kohm 1/16W	
TR402	271 0238 908	Transistor 2SA1037K		R120	951 9002 875	Carbon chip 3.9 kohm 1/16W	
TR403	951 0063 208	Transistor HIT5610		R122	951 9002 613	Carbon chip 100 ohm 1/16W	
TR404	GP3 8002 014	Transistor 2SC536GSP		R123	951 9002 697	Carbon chip 1.2 kohm 1/16W	
TR406,407	269 0082 902	Transistor DTC114EK	for E1H	R124	951 9002 820	Carbon chip 33 kohm 1/16W	
TR461,462	GP3 8002 023	Transistor 2SC2412K		R125	951 9002 943	Carbon chip 6.8 kohm 1/16W	
TR601	GP3 8002 023	Transistor 2SC2412K		R127	951 9002 613	Carbon chip 100 ohm 1/16W	
TR602,603	269 0144 905	Transistor DTC114YK		R128	951 9002 736	Carbon chip 22 ohm 1/16W	
TR604,605	269 0144 905	Transistor DTA114YK	for E1H	R129	951 9002 794	Carbon chip 2.2 kohm 1/16W	
TR606	269 0082 902	Transistor DTC114EK		R130	951 9002 639	Carbon chip 10 kohm 1/16W	
TR608,609	GP3 8002 023	Transistor 2SC2412K		R133	951 9002 684	Carbon chip 1 kohm 1/16W	
TR707	GP3 8002 023	Transistor 2SC2412K		R134	951 9002 875	Carbon chip 3.9 kohm 1/16W	
TR708	951 0063 208	Transistor HIT5610	for E1H	R135	951 9002 642	Carbon chip 12 kohm 1/16W	
				R137	951 9002 639	Carbon chip 10 kohm 1/16W	
				R138	951 9002 668	Carbon chip 15 kohm 1/16W	
				R139,140	951 9002 901	Carbon chip 47 kohm 1/16W	

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
R141	951 9002 655	Carbon chip 150 kohm 1/16W		R419	951 9002 956	Carbon chip 7.5 kohm 1/16W	
R142	951 9002 927	Carbon chip 5.6 kohm 1/16W		R420	951 9002 684	Carbon chip 1 kohm 1/16W	
R143	951 9002 639	Carbon chip 10 kohm 1/16W		R421	951 9002 668	Carbon chip 15 kohm 1/16W	
R144	951 9002 613	Carbon chip 100 ohm 1/16W	for E1H	R422,423	951 9002 684	Carbon chip 1 kohm 1/16W	
R145	951 9002 723	Carbon chip 1 Mohm 1/16W		R424	951 9002 684	Carbon chip 1 kohm 1/16W	
R146	951 9002 613	Carbon chip 100 ohm 1/16W	for E1H	R425	951 9002 639	Carbon chip 10 kohm 1/16W	
R147	951 9002 639	Carbon chip 10 kohm 1/16W	for E1H	R426	951 9002 684	Carbon chip 1 kohm 1/16W	
R148	951 9002 613	Carbon chip 100 ohm 1/16W		R427	951 9002 684	Carbon chip 1 kohm 1/16W	
R149-151	951 9002 639	Carbon chip 10 kohm 1/16W		R428	951 9002 914	Carbon chip 4.7 kohm 1/16W	
R152-155	951 9002 752	Carbon chip 22 kohm 1/16W		R429	951 9002 927	Carbon chip 5.6 kohm 1/16W	
R156,157	951 9003 476	Carbon chip 8.2 kohm 1/16W	for E3	R431	951 9002 927	Carbon chip 5.6 kohm 1/16W	
R160,161	951 9002 684	Carbon chip 1 kohm 1/16W		R432	951 9002 639	Carbon chip 10 kohm 1/16W	
R303,304	951 9002 862	Carbon chip 3.6 kohm 1/16W		R433	951 9003 502	Carbon chip 20 kohm 1/16W	
R305-313	951 9002 684	Carbon chip 1 kohm 1/16W		R434	951 9002 684	Carbon chip 1 kohm 1/16W	
R317,318	951 9002 820	Carbon chip 33 kohm 1/16W		R435	951 9002 901	Carbon chip 47 kohm 1/16W	
R319,320	951 9002 639	Carbon chip 10 kohm 1/16W		R436	951 9002 985	Carbon chip 82 kohm 1/16W	
R319,320	951 9003 447	Carbon chip 2 kohm 1/16W	for E3	R437	951 9002 749	Carbon chip 220 ohm 1/16W	
R321,322	951 9002 609	Carbon chip 0 ohm 1/16W	for E3	R438	951 9002 930	Carbon chip 68 kohm 1/16W	
R323	951 9002 684	Carbon chip 1 kohm 1/16W		R439	951 9002 901	Carbon chip 47 kohm 1/16W	
R325,326	951 9002 794	Carbon chip 2.2 kohm 1/16W		R440	951 9002 914	Carbon chip 4.7 kohm 1/16W	
R327	951 9002 626	Carbon chip 100 kohm 1/16W		R441	951 9003 515	Carbon chip 51 kohm 1/16W	
R328	951 9002 639	Carbon chip 10 kohm 1/16W		R443,444	951 9002 684	Carbon chip 1 kohm 1/16W	
R329,330	951 9002 749	Carbon chip 220 ohm 1/16W		R446	951 9002 600	Carbon chip 0 ohm 1/16W	
R341,342	951 9002 626	Carbon chip 100 kohm 1/16W		R447	951 9002 859	Carbon chip 3.3 kohm 1/16W	
R349,350	951 9002 972	Carbon chip 820 ohm 1/16W		R449	951 9002 626	Carbon chip 100 kohm 1/16W	
R351-354	951 9002 639	Carbon chip 10 kohm 1/16W		R450	951 9002 875	Carbon chip 3.9 kohm 1/16W	
R361,362	951 9002 781	Carbon chip 27 kohm 1/16W		R451	951 9002 710	Carbon chip 1.8 kohm 1/16W	
R363,364	951 9002 901	Carbon chip 47 kohm 1/16W		R452	951 9002 875	Carbon chip 3.9 kohm 1/16W	
R365,366	951 9002 626	Carbon chip 100 kohm 1/16W	for E1H	R456	951 9003 502	Carbon chip 20 kohm 1/16W	
R365,366	951 9002 684	Carbon chip 1 kohm 1/16W	for E3	R457	951 9002 639	Carbon chip 10 kohm 1/16W	
R367,368	951 9002 626	Carbon chip 100 kohm 1/16W	for E1H	R458	951 9002 626	Carbon chip 100 kohm 1/16W	
R369	951 9002 600	Carbon chip 0 ohm 1/16W	for E3	R459	951 9002 927	Carbon chip 5.6 kohm 1/16W	
R370,371	951 9002 639	Carbon chip 10 kohm 1/16W		R461,462	951 9002 600	Carbon chip 0 ohm 1/16W	
R372,373	951 9002 901	Carbon chip 47 kohm 1/16W		R463,464	951 9002 901	Carbon chip 47 kohm 1/16W	
R374	951 9003 463	Metal oxide 120 ohm 1W		R465,466	951 9002 639	Carbon chip 10 kohm 1/16W	
R380,381	951 9002 600	Carbon chip 0 ohm 1/16W	for E1H	R469,470	951 9002 817	Carbon chip 330 kohm 1/16W	
R383,384	951 9002 600	Carbon chip 0 ohm 1/16W	for E1H	R471,472	951 9002 888	Carbon chip 470 ohm 1/16W	
R385,386	951 9002 626	Carbon chip 100 kohm 1/16W	for E3	R473,474	951 9002 846	Carbon chip 3 kohm 1/16W	
R387,388	951 9003 476	Carbon chip 8.2 kohm 1/16W	for E3	R475,476	951 9002 927	Carbon chip 5.6 kohm 1/16W	
R406	951 9002 684	Carbon chip 1 kohm 1/16W		R477,478	951 9002 859	Carbon chip 3.3 kohm 1/16W	
R407	951 9002 969	Carbon chip 82 ohm 1/16W		R479,480	951 9002 684	Carbon chip 1 kohm 1/16W	
R409	951 9002 927	Carbon chip 5.6 kohm 1/16W		R482	951 9002 639	Carbon chip 10 kohm 1/16W	
R410	951 9002 888	Carbon chip 470 ohm 1/16W		R483	951 9002 600	Carbon chip 0 ohm 1/16W	
R411	951 9002 600	Carbon chip 0 ohm 1/16W		R600	951 9002 671	Carbon chip 18 kohm 1/16W	for E1H
R412	951 9003 489	Carbon chip 56 ohm 1/16W		R601	951 9002 639	Carbon chip 10 kohm 1/16W	for E1H
R413	951 9002 600	Carbon chip 0 ohm 1/16W		R602	951 9002 684	Carbon chip 1 kohm 1/16W	
R414	951 9002 817	Carbon chip 330 ohm 1/16W		R603-605	951 9002 639	Carbon chip 10 kohm 1/16W	
R415	951 9003 492	Carbon chip 47 ohm 1/16W		R606	951 9002 639	Carbon chip 10 kohm 1/16W	for E3
R416	951 9002 891	Carbon chip 470 kohm 1/16W		R607	951 9002 639	Carbon chip 10 kohm 1/16W	
R418	951 9002 639	Carbon chip 10 kohm 1/16W		R608-616	951 9002 684	Carbon chip 1 kohm 1/16W	
				R617-619	951 9002 684	Carbon chip 1 kohm 1/16W	

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
R620,621	951 9002 684	Carbon chip 1 kohm 1/16W	for E1H	R719,720	951 9002 684	Carbon chip 1 kohm 1/16W	for E1H for E3
R622	951 9002 794	Carbon chip 2.2 kohm 1/16W		R722	951 9002 639	Carbon chip 10 kohm 1/16W	
R623,624	951 9002 684	Carbon chip 1 kohm 1/16W		R801,802	951 9002 639	Carbon chip 10 kohm 1/16W	
R625,626	951 9002 794	Carbon chip 2.2 kohm 1/16W		R805,806	951 9003 447	Carbon chip 2 kohm 1/16W	
R635	951 9002 639	Carbon chip 10 kohm 1/16W		R805,806	951 9002 914	Carbon chip 4.7 kohm 1/16W	
R636	951 9002 710	Carbon chip 1.8 kohm 1/16W		R807,808	951 9003 531	Carbon chip 750 ohm 1/16W	
R637	951 9002 697	Carbon chip 1.2 kohm 1/16W		R809-812	951 9002 639	Carbon chip 10 kohm 1/16W	
R638	951 9002 804	Carbon chip 2.7 kohm 1/16W		R820	951 9002 639	Carbon chip 10 kohm 1/16W	
R639	951 9002 901	Carbon chip 47 kohm 1/16W		R821	951 9002 684	Carbon chip 1 kohm 1/16W	
R640	951 9002 684	Carbon chip 1 kohm 1/16W		R822	951 9002 600	Carbon chip 0 ohm 1/16W	
R641	951 9002 639	Carbon chip 10 kohm 1/16W		R823	951 9002 804	Carbon chip 2.7 kohm 1/16W	
R642	951 9002 707	Carbon chip 1.5 kohm 1/16W		R825,826	GP3 8002 045	Carbon film 3.9 ohm 1/2W	
R643	951 9002 697	Carbon chip 1.2 kohm 1/16W		CAPACITORS GROUP			
R644	951 9002 710	Carbon chip 1.8 kohm 1/16W		C104	951 9003 706	Electrolytic 0.33uF/50V	for E3 for E1H
R645	951 9002 804	Carbon chip 2.7 kohm 1/16W		C105	951 9003 366	Electrolytic 47uF/16V	
R646	951 9002 639	Carbon chip 10 kohm 1/16W		C106	951 9003 544	Ceramic chip 0.33uF/16V	
R647	951 9002 875	Carbon chip 3.9 kohm 1/16W		C107	951 9003 706	Electrolytic 0.33uF/50V	
R648	951 9002 901	Carbon chip 47 kohm 1/16W		C108	951 9001 973	Ceramic chip 0.022uF/50V	
R649	951 9002 639	Carbon chip 10 kohm 1/16W		C109	951 9003 353	Electrolytic 100uF/10V	
R650-652	951 9002 859	Carbon chip 3.3 kohm 1/16W		C110,111	951 9001 973	Ceramic chip 0.022uF/50V	
R653	951 9002 707	Carbon chip 1.5 kohm 1/16W		C112	951 9001 876	Ceramic chip 0.001uF/50V	
R654	951 9002 927	Carbon chip 5.6 kohm 1/16W		C113	951 9003 366	Electrolytic 47uF/16V	
R655	951 9002 684	Carbon chip 1 kohm 1/16W		C114	951 9003 557	Electrolytic 470uF/10V	
R656,657	951 9002 914	Carbon chip 4.7 kohm 1/16W		C115	951 9002 794	Carbon chip 2.2 kohm 1/16W	
R659-664	951 9002 684	Carbon chip 1 kohm 1/16W		C116	951 9001 973	Ceramic chip 0.022uF/50V	
R665	951 9002 972	Carbon chip 820 ohm 1/16W		C119	951 9003 353	Electrolytic 100uF/10V	
R666-673	951 9002 684	Carbon chip 1 kohm 1/16W		C120	951 9001 931	Ceramic chip 0.047uF/50V	
R674	951 9002 697	Carbon chip 1.2 kohm 1/16W		C122	951 9001 805	Ceramic chip 680pF/50V	
R676,677	951 9002 794	Carbon chip 2.2 kohm 1/16W		C123,124	951 9003 560	Ceramic chip 0.1uF/16V	
R678	951 9002 639	Carbon chip 10 kohm 1/16W		C126	951 9001 737	Ceramic chip 4pF/50V	
R680	951 9002 684	Carbon chip 1 kohm 1/16W		C129	951 9001 915	Ceramic chip 0.022uF/50V	
R682	951 9002 684	Carbon chip 1 kohm 1/16W		C130,131	951 9003 612	Electrolytic 10uF/16V	
R683	951 9002 749	Carbon chip 220 kohm 1/16W		C130,131	951 9003 379	Electrolytic 10uF/25V	
R685,686	951 9002 888	Carbon chip 470 ohm 1/16W	C133	951 9003 573	Ceramic chip 27pF/50V		
R687,688	951 9002 778	Carbon chip 24 kohm 1/16W	C134	951 9001 753	Ceramic chip 22pF/50V		
R689	951 9002 639	Carbon chip 10 kohm 1/16W	C136	951 9003 353	Electrolytic 100uF/10V		
R690,691	951 9002 639	Carbon chip 10 kohm 1/16W	C137	951 9001 915	Ceramic chip 0.022uF/50V		
R692	951 9002 639	Carbon chip 10 kohm 1/16W	C138	951 9003 353	Electrolytic 100uF/10V		
R693	951 9002 639	Carbon chip 10 kohm 1/16W	C139	951 9001 795	Ceramic chip 470pF/50V		
R694	951 9002 600	Carbon chip 0 ohm 1/16W	C140,141	951 9001 915	Ceramic chip 0.022uF/50V		
R695	951 9002 684	Carbon chip 1 kohm 1/16W	C142	951 9003 366	Electrolytic 47uF/16V		
R696	951 9003 528	Carbon chip 30 kohm 1/16W	C143	951 9003 353	Electrolytic 100uF/10V		
R697	951 9002 642	Carbon chip 12 kohm 1/16W	C144	951 9001 766	Ceramic chip 220pF/50V		
R701	GP3 8002 042	Metal oxide 330 ohm 1W	for E1H	C145	951 9003 586	Ceramic chip 0.068uF/16V	
R705	951 9002 639	Carbon chip 10 kohm 1/16W	for E1H	C146	951 9001 931	Ceramic chip 0.047uF/50V	
R707	951 9002 626	Carbon chip 100 ohm 1/16W		C147	951 9001 782	Ceramic chip 47pF/50V	
R708-710	951 9002 684	Carbon chip 1 kohm 1/16W		C148	951 9003 599	Mylar film 0.01uF/100V	
R712	951 9002 684	Carbon chip 1 kohm 1/16W		C149	951 9003 609	Ceramic chip 0.0027uF/50V	
R714	951 9002 684	Carbon chip 1 kohm 1/16W	for E1H	C150	951 9001 805	Ceramic chip 680pF/50V	
R715	951 9002 639	Carbon chip 10 kohm 1/16W		C151	951 9001 902	Ceramic chip 0.015uF/50V	
R718	951 9002 639	Carbon chip 10 kohm 1/16W					

Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
C152	951 9001 928	Ceramic chip 0.033uF/50V		C406	951 9003 379	Electrolytic 10uF/25V	
C153	951 9001 931	Ceramic chip 0.047uF/50V		C409	951 9001 915	Ceramic chip 0.022uF/50V	
C154	951 9003 586	Ceramic chip 0.068uF/16V		C410	951 9003 395	Electrolytic 100uF/16V	
C155	951 9001 892	Ceramic chip 0.01uF/50V		C412	951 9003 654	Electrolytic 22uF/16V	
C156	951 9001 928	Ceramic chip 0.033uF/50V		C413	951 9003 683	Electrolytic 470uF/25V	
C157	951 9003 366	Electrolytic 47uF/16V		C414	951 9001 915	Ceramic chip 0.022uF/50V	
C158	951 9001 915	Ceramic chip 0.022uF/50V		C415,416	951 9003 696	Electrolytic 1uF/50V	
C159	951 9001 931	Ceramic chip 0.047uF/50V		C417	951 9001 931	Ceramic chip 0.047uF/50V	
C160	951 9003 612	Electrolytic 10uF/16V	for E3	C418	951 9001 876	Ceramic chip 0.001uF/50V	
C160	951 9003 379	Electrolytic 10uF/25V	for E1H	C419	951 9001 915	Ceramic chip 0.022uF/50V	
C161	951 9003 625	Ceramic chip 10pF/50V	for E1H	C420,421	951 9003 573	Ceramic chip 27pF/50V	
C162	951 9001 915	Ceramic chip 0.022uF/50V		C422,423	951 9001 740	Ceramic chip 100pF/50V	
C163	951 9003 395	Electrolytic 100uF/16V		C424	951 9003 719	Electrolytic 47uF/25V	
C164,165	951 9001 915	Ceramic chip 0.022uF/50V		C425	951 9001 740	Ceramic chip 100pF/50V	
C166,167	951 9001 847	Ceramic chip 15pF/50V		C426	951 9001 876	Ceramic chip 0.001uF/50V	
C168	951 9001 915	Ceramic chip 0.022uF/50V		C427	951 9001 915	Ceramic chip 0.022uF/50V	
C169	951 9003 353	Electrolytic 100uF/10V		C428	951 9003 382	Electrolytic 4.7uF/50V	
C170	951 9003 395	Electrolytic 100uF/16V		C429,430	951 9001 973	Ceramic chip 0.022uF/50V	
C171	951 9001 915	Ceramic chip 0.022uF/50V		C432	951 9001 915	Ceramic chip 470pF/50V	
C172	951 9003 638	Ceramic chip 0.1uF/25V		C433	951 9001 795	Ceramic chip 0.1uF/16V	
C173	951 9001 915	Ceramic chip 0.022uF/50V		C434	951 9003 560	Electrolytic 10uF/25V	
C174	951 9003 366	Electrolytic 47uF/16V		C435	951 9003 382	Electrolytic 4.7uF/50V	
C175,176	951 9003 382	Electrolytic 4.7uF/50V	for E3	C436	951 9001 795	Ceramic chip 0.1uF/16V	
				C437	951 9003 719	Electrolytic 47uF/25V	
C201,202	951 9002 752	Carbon chip 22 kohm 1/16W		C438,439	951 9001 795	Ceramic chip 0.1uF/16V	
				C440	951 9001 973	Ceramic chip 0.022uF/50V	
C301,302	951 9003 382	Electrolytic 4.7uF/50V		C441	951 9001 876	Ceramic chip 0.001uF/50V	
C303,304	951 9001 876	Ceramic chip 0.001uF/50V		C442	951 9001 892	Ceramic chip 0.01uF/50V	
C307,308	951 9003 382	Electrolytic 4.7uF/50V		C443	951 9001 766	Ceramic chip 220pF/50V	for E1H
C309	951 9003 382	Electrolytic 4.7uF/50V	for E1H	C444	951 9001 782	Ceramic chip 47pF/50V	
C310	951 9003 382	Electrolytic 4.7uF/50V	for E1H	C445	951 9003 366	Electrolytic 47uF/16V	
C311-313	951 9003 382	Electrolytic 4.7uF/50V		C446	951 9003 379	Electrolytic 10uF/25V	
C314	951 9003 641	Electrolytic 2.2uF/50V		C447,448	951 9001 931	Ceramic chip 0.047uF/50V	
C317-320	951 9001 724	Mylar film 0.1uF/100V		C449	951 9001 915	Ceramic chip 0.022uF/50V	
C322	951 9003 395	Electrolytic 100uF/16V		C450	951 9001 740	Ceramic chip 100pF/50V	
C323	951 9001 915	Ceramic chip 0.022uF/50V		C451	951 9003 722	Mylar film 470pF/50V	
C324	951 9003 654	Electrolytic 22uF/16V		C452	951 9003 735	Ceramic chip 18pF/50V	
C325	951 9003 353	Electrolytic 100uF/10V		C453	951 9003 353	Electrolytic 100uF/10V	
C326	951 9003 379	Electrolytic 10uF/25V		C454	951 9003 641	Electrolytic 2.2uF/50V	
C327,328	951 9003 382	Electrolytic 4.7uF/50V		C455	951 9003 382	Electrolytic 4.7uF/50V	
C329,330	951 9001 782	Ceramic chip 47pF/50V		C456	951 9001 740	Ceramic chip 100pF/50V	
C341,342	951 9003 667	Electrolytic 47uF/50V	for E1H	C457	951 9003 654	Electrolytic 22uF/16V	
C341,342	951 9003 382	Electrolytic 4.7uF/50V	for E3	C458	951 9002 998	Electrolytic 0.47uF/50V	
C343-345	951 9001 740	Ceramic chip 100pF/50V		C459	951 9001 915	Ceramic chip 0.022uF/50V	
C346	951 9001 779	Ceramic chip 39pF/50V		C461,462	951 9001 902	Ceramic chip 0.015uF/50V	for E1H
C347,348	951 9003 366	Electrolytic 47uF/16V		C461,462	951 9001 915	Ceramic chip 0.022uF/50V	for E3
C349-351	951 9003 395	Electrolytic 100uF/16V		C463,464	951 9003 696	Electrolytic 1uF/50V	
C353-355	951 9001 892	Ceramic chip 0.01uF/50V		C467,468	951 9003 696	Electrolytic 1uF/50V	
C357	951 9003 670	Electrolytic 220uF/16V		C469,470	951 9001 876	Ceramic chip 0.001uF/50V	
				C471,472	951 9003 696	Electrolytic 1uF/50V	
C402,403	951 9001 876	Ceramic chip 0.001uF/50V		C473	951 9001 889	Ceramic chip 0.0047uF/50V	
C405	951 9001 931	Ceramic chip 0.047uF/50V		C474	951 9001 915	Ceramic chip 0.022uF/50V	

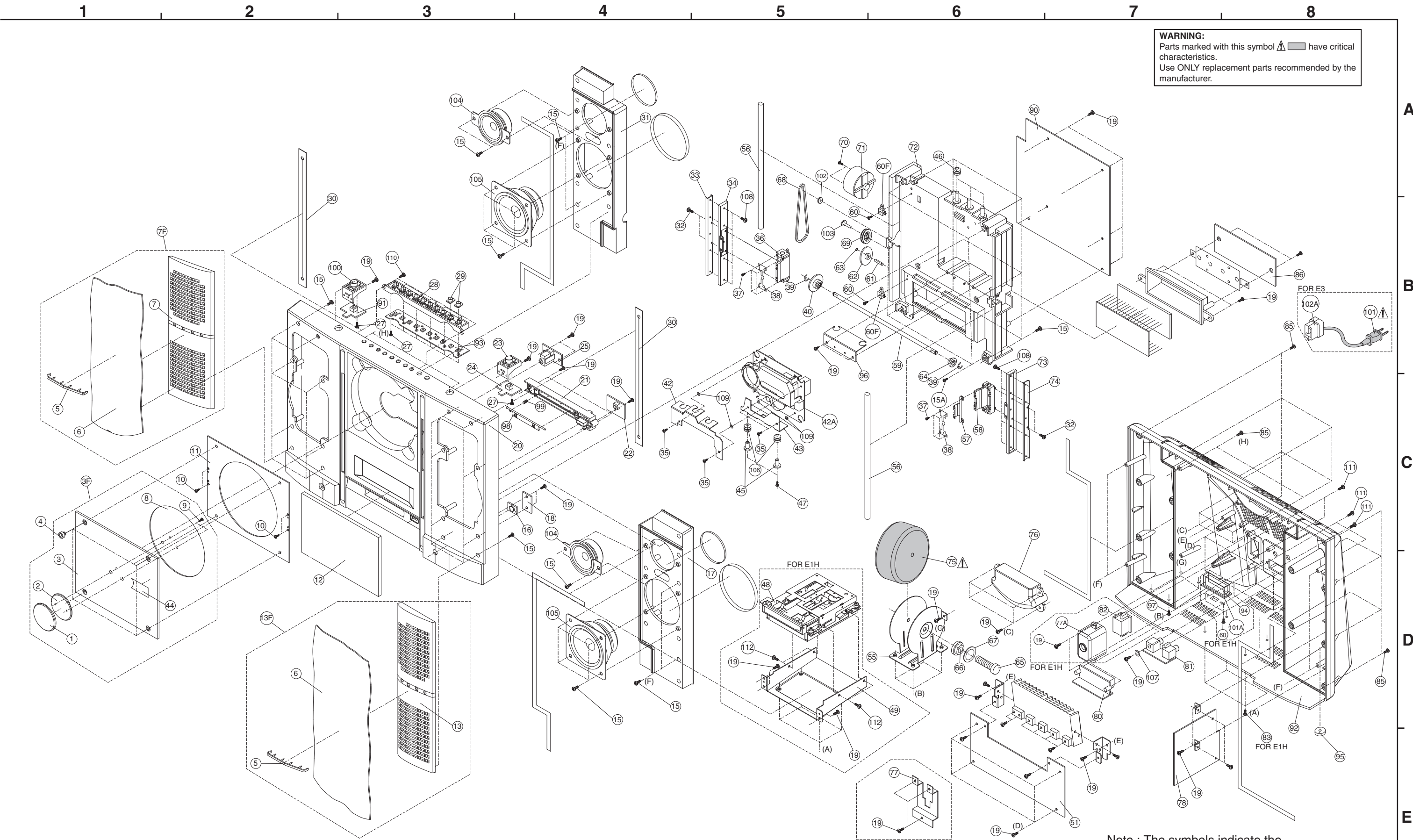
Ref. No.	Part No.	Part Name	Remarks	Ref. No.	Part No.	Part Name	Remarks
C479	951 9001 753	Ceramic chip 22pF/50V		C801-804	951 9003 719	Electrolytic 47uF/25V	
C480	951 9003 395	Electrolytic 100uF/16V		C805,806	951 9002 516	Mylar film 0.22uF/50V	
C601	951 9001 915	Ceramic chip 0.022uF/50V		C807,808	951 9003 405	Electrolytic 2200uF/10V	
C602	951 9003 366	Electrolytic 47uF/16V		C825	951 9003 803	Electrolytic 220uF/25V	
C603	951 9003 379	Electrolytic 10uF/25V		C826,827	951 9001 795	Ceramic chip 470pF/50V	
C604	951 9001 915	Ceramic chip 0.022uF/50V		C829,830	951 9001 724	Mylar film 0.1uF/100V	
C605	951 9003 696	Electrolytic 1uF/50V		C831,832	951 9003 816	Electrolytic 2.7uF/100V	
C606	951 9001 915	Ceramic chip 0.022uF/50V		TC401	951 0020 005	Trimmer CVN(R)610	
C607-609	951 9001 782	Ceramic chip 47pF/50V		OTHER PARTS GROUP			Q'ty
C611	951 9001 740	Ceramic chip 100pF/50V		CF401	951 0020 500	Ceramic filter SFZ450B	1
C612	951 9001 782	Ceramic chip 47pF/50V		CF402	951 0020 704	Ceramic filter SFE 10.7MS3-A	1
C613,614	951 9003 829	Ceramic chip 27pF/50V		CF403	951 0020 704	Ceramic filter SFE 10.7MS3-A	1
C616	951 9003 557	Electrolytic 470uF/10V		CW021	951 0068 009	3P wire Ass'y L=100 (PH)	for E1H 1
C617	951 9001 740	Ceramic chip 100pF/50V		CW022	951 0068 009	3P wire Ass'y L=100 (PH)	1
C618	951 9001 915	Ceramic chip 0.022uF/50V		CW023	951 0068 106	3P wire Ass'y L=50 (PH)	1
C619-622	951 9001 740	Ceramic chip 100pF/50V		CW031	951 0068 106	3P wire Ass'y L=50 (PH)	1
C623	951 9001 892	Ceramic chip 0.01uF/50V		CW032	951 0069 008	3P wire Ass'y L=300 (PH)	1
C624	951 9003 719	Electrolytic 47uF/25V		CW062	951 0069 105	6P connector base BU	1
C626	951 9001 892	Ceramic chip 0.01uF/50V		CX021	951 0026 407	3P connector base	for E1H 1
C628	951 9003 382	Electrolytic 4.7uF/50V		CX022	951 0026 407	3P connector base	1
C629	951 9003 638	Ceramic chip 0.1uF/25V		CX023	951 0069 202	3P connector base BU	1
C630	951 9001 876	Ceramic chip 0.001uF/50V	for E1H	CX031	951 0069 202	3P connector base BU	1
C633	951 9001 876	Ceramic chip 0.001uF/50V	for E1H	CX032	951 0026 407	3P connector base	1
C635	951 9003 751	Ceramic chip 0.0012uF/50V	for E1H	CX033	GP3 8003 045	6P connector base	1
C637	951 9001 915	Ceramic chip 0.022uF/50V		CX034	951 0025 903	4P connector base	1
C638	951 9003 764	Electrolytic 220uF/10V	for E1H	CX035	951 0069 309	4P connector base RD	1
C639,640	951 9003 382	Electrolytic 4.7uF/50V	for E1H	CX042	GP3 8003 043	4P connector base	1
C642	951 9003 557	Electrolytic 470uF/10V		CX043	GP3 8003 043	4P connector base	for E1H 1
C643	951 9003 751	Ceramic chip 0.0012uF/50V		CX052	GP3 8003 040	5P connector base	1
C644	951 9003 696	Electrolytic 1uF/50V		CX061	GP3 8003 045	6P connector base	1
C645	951 9001 915	Ceramic chip 0.022uF/50V		CX071	951 0069 406	7P connector base	1
C647,648	951 9001 915	Ceramic chip 0.022uF/50V		CX101	GP3 8003 041	10P connector base	1
C649	951 9003 777	Electrolytic 0.22uF/50V		CX111	951 0068 300	11P connector base	1
C701	951 9003 719	Electrolytic 47uF/25V		CX151	951 0026 805	16P FFC base (P=1)	1
C702	951 9003 719	Electrolytic 47uF/25V	for E1H	CX281	951 0068 407	28P FFC base (P=1)	for E1H 1
C703	951 9003 719	Electrolytic 47uF/25V		CX401	951 0025 000	3P wire Ass'y L=350 (EH)	for E1H 1
C704	951 9003 379	Electrolytic 10uF/25V		CX402	951 0069 804	10P wire Ass'y L=400 (PH)	for E3 1
C706	951 9003 719	Electrolytic 47uF/25V		CX403	951 0067 602	3P wire Ass'y L=350 (XH)	1
C707	951 9001 708	Ceramic 0.01uF/50V		CY042	951 0067 806	4P wire Ass'y L=350 (PH)	1
C709	951 9003 719	Electrolytic 47uF/25V	for E1H	CY052	951 0067 709	5P wire Ass'y L=450 (PH)	1
C710	951 9003 780	Electrolytic 10uF/50V		CY061	951 0069 503	6P wire Ass'y L=250 (PH)	1
C711,712	951 9001 708	Ceramic 0.01uF/50V		CY111	951 0068 203	11P wire Ass'y L=150 (PH)	for E3 1
C713,714	951 9003 780	Electrolytic 10uF/50V		△ F701	GP3 8003 001	Fuse 2.5A/250V	for E3 1
C715	951 9001 708	Ceramic 0.01uF/50V	for E1H	△ F702	951 0017 801	Fuse 4A/125V	for E3 1
C716	951 9003 780	Electrolytic 10uF/50V	for E1H	JK1	951 0059 607	4P antenna terminal	for E1H 1
C721,722	951 9003 421	Electrolytic 4700uF/25V					
C724-727	951 9001 711	Ceramic 0.1uF					
C731-734	951 9001 711	Ceramic 0.1uF					
C737-740	951 9001 708	Ceramic 0.01uF/50V					


Ref. No.	Part No.	Part Name	Remarks	Q'ty	Ref. No.	Part No.	Part Name	Remarks	Q'ty
JK1	951 0069 600	4P antenna terminal	for E3	1		951 0070 408	Rubber	for E1H	1
JK301	951 0059 801	Mini jack		1		—	UL PVC tube (1)	for E1H	1
JK302	951 0059 704	1P pin jack		1		—	UL PVC tube (2)		1
JK303	951 0010 808	Mini jack		1		GP3 8003 011	Fuse holder		4
JP10-14	951 9002 600	Carbon chip 0 ohm 1/16W		5		951 9001 070	Screw 3x6 CBTS(S)		4
JP176,177	GP3 8002 006	Diode 1N4148	for E1H	2		951 0068 203	11P wire Ass'y L=150 (PH)	for E1H	1
JP23-26	951 9002 600	Carbon chip 0 ohm 1/16W		4		—	Heat sink		1
JP3	951 9002 600	Carbon chip 0 ohm 1/16W	for E3	1		951 0065 507	Heat sink bracket (L)		1
JP33-37	951 9002 600	Carbon chip 0 ohm 1/16W	for E1H	5		951 0065 701	Heat sink bracket (R)		1
JP402-404	951 9002 600	Carbon chip 0 ohm 1/16W		3		951 9001 151	Screw 3x8 CBTS(S)		6
JP40-45	951 9002 600	Carbon chip 0 ohm 1/16W	for E3	6		GP3 8009 004	Screw 3x10 CBTS(S)		2
L103-105	951 0063 402	Inductor 2.2uH		3	⚠	951 0034 004	Fuse 4A/250V	for E1H	1
L106	951 0063 509	Inductor 1uH		1	⚠	951 0034 101	Fuse 2.5A/250V	for E1H	1
L107	951 0063 402	Inductor 2.2uH		1		—	Lug		1
L109	951 0069 707	Beads inductor		1		—	Wire BK L=100		1
L404	951 0063 305	Inductor 100uH		1		951 0070 505	Rubber foam		1
L405	951 0069 707	Beads inductor		1		951 0070 602	Ferrite core	for E1H	3
L601,602	951 0063 402	Inductor 2.2uH		2		951 0070 602	Ferrite core	for E3	2
RF401	951 0046 500	FM tuner module KCF217V		1		—	UL tube (5)		1
S603	951 0062 005	Tact switch		1		951 0064 207	PWB bracket		2
S604-607	951 0010 905	Tact switch		4		951 9001 070	Screw 3x6 CBTS(S)	for E3	2
S609	951 0010 905	Tact switch		1		—	Lug		1
S611,612	951 0010 905	Tact switch		2	⚠	951 0069 804	10P wire Ass'y L=400 (PH)	for E1H	1
S613	951 0062 005	Tact switch		1		951 0025 000	3P wire Ass'y L=350 (EH)	for E3	1
S615	951 0062 005	Tact switch		1		—	Wire BK L=30		1
S617	951 0062 005	Tact switch		1	⚠	951 0070 709	Voltage selector	for E1H	1
S618	951 0010 905	Tact switch	for E1H	1		—	Wire BN L=250	for E1H	2
S619	951 0062 005	Tact switch		1	⚠	951 0070 806	AC inlet	for E1H	1
T401	951 0019 508	AM IF coil		1		—	Wire BK L=80	for E1H	1
T402	951 0069 901	AM antenna coil		1		—	UL PVC tube (1)	for E3	1
T403	951 0070 000	AM OSC coil		1		—	Wire RD L=180	for E3	1
T404	951 0019 207	FM DET IFT coil		1		—	Wire WH L=40	for E3	2
W1	951 0025 819	3P connector base		1					
W104	951 0070 107	4P connector base		1					
W2	951 0026 216	3P connector base		1					
X101	GP3 8002 050	Crystal 16.9344MHz		1					
X601	951 0062 209	Crystal 8.3886MHz		1					
XTL401	951 0062 102	Crystal 4.5000MHz		1					
	951 0023 808	Fuse label 4A/125V	for E3	1					
	951 0070 204	Fuse label T4A/250V	for E1H	1					
	951 0023 824	Fuse label 2.5A/250V	for E3	1					
	951 0070 301	Fuse label T2.5A/250V	for E1H	1					
	951 0038 301	Cover		8					

DISPLAY P.W.B. UNIT ASSY

Ref. No.	Part No.	Part Name	Remarks
SEMICONDUCTORS GROUP			
IC501	951 0023 400	IC LC75811W	
D501	GP3 8002 006	Diode 1N4148	
RESISTORS GROUP			
R501	951 0025 204	Metal oxide 2.2 ohm 1W	
R502	951 9002 820	Carbon chip 33 kohm 1/16W	
R503	951 9002 859	Carbon chip 3.3 kohm 1/16W	
R504	951 9002 875	Carbon chip 3.9 kohm 1/16W	
R505	951 9002 642	Carbon chip 12 kohm 1/16W	
R506	951 9003 476	Carbon chip 8.2 kohm 1/16W	
R507	951 9003 845	Carbon film 220 ohm 1/8W	
R508	951 9002 684	Carbon chip 1 kohm 1/16W	
CAPACITORS GROUP			
C501	951 9001 766	Ceramic chip 220pF/50V	
C502-505	951 9003 560	Ceramic chip 0.1uF/16V	
C506	951 9003 418	Electrolytic 47uF/16V	
C508	951 9003 418	Electrolytic 47uF/16V	
C509	951 9003 560	Ceramic chip 0.1uF/16V	
C510-512	951 9003 751	Ceramic chip 0.0012uF/50V	
OTHER PARTS GROUP			
CY071	951 0025 408	7P wire Ass'y L=250	Q'ty 1
FL501	951 0063 606	LCD TSB0716-UGTDPW	1
	951 0061 608	Color filter sheet WH	1
	951 0061 909	5V/220mA lamp	4
	951 0007 905	Lamp cap BU	4
	473 7500 015	Screw 3x8 CBTS(S)	2
		PVC washer	2
	951 0004 102	LCD reflector	1
	951 0025 301	LCD shield plate	1

EXPLODED VIEW



WARNING:
Parts marked with this symbol  have critical characteristics.
Use **ONLY** replacement parts recommended by the manufacturer.

(There is no MD section in the U.S.A. and Canada model.)

Note : The symbols indicate the following destinations.
E1H : Hong Kong model
E3 : U.S.A. & Canada model

(There is no MD section in the U.S.A. and Canada model.)

Note : The symbols in the column "Remarks" indicate the following destinations.
E1H : Hong Kong model
E3 : U.S.A. & Canada model

PARTS LIST OF EXPLODED VIEW

Ref. No.	Part No.	Part Name	Remarks	Q'ty	Ref. No.	Part No.	Part Name	Remarks	Q'ty
18	951 0073 007	Sensor P.W.B.		1	44	—	Door name plate		
22	951 0073 104	MD eject P.W.B.	for E1H	1	45	951 0066 700	Cushion holder		2
24	951 0073 201	CD open/close P.W.B.		1	46	462 0167 002	CD cushion damper A (BU)		3
25	951 0073 308	Headphone P.W.B.		1	48	337 0103 003	MD mecha MDM08AD	for E1H	1
51	951 0061 019	Amp P.W.B.	for E1H	1	49	951 0065 400	MD mount bracket	for E1H	1
51	951 0061 022	Amp P.W.B.	for E3	1	55	951 0065 604	Trans. Bracket		1
78	951 0061 310	Tuner P.W.B.	for E1H	1	56	951 0067 301	Gear rod		2
78	951 0061 323	Tuner P.W.B.	for E3	1	57	951 0061 705	Contact plate		1
80	951 0073 405	Antenna P.W.B.	for E1H	1	58	951 0065 002	Slide (R)		1
80	951 0073 418	Antenna P.W.B.	for E3	1	59	951 0067 204	Gear shaft		1
81	951 0073 502	AUX P.W.B.		1	60F	951 0067 505	Detector switch		2
82	951 0073 900	AC inlet P.W.B.	for E1H	1	61	951 0067 000	Gear shaft		1
86	951 0071 009	Display P.W.B.		1	62	951 0066 205	Follower gear		1
90	951 0061 116	Main P.W.B.	for E1H	1	63	951 0003 213	PVC slit washer		1
90	951 0061 129	Main P.W.B.	for E3	1	64	951 0066 302	Driver gear (R)		1
91	951 0073 609	Power key P.W.B.		1	66	951 0066 904	Plastic ring		1
93	951 0073 706	Function key P.W.B.	for E1H	1	67	951 9002 590	Metal washer		1
93	951 0073 719	Function key P.W.B.	for E3	1	68	951 0003 307	CD belt		1
94	951 0073 803	Voltage selector P.W.B.	for E1H	1	69	951 0066 409	Pulley gear		1
					71	951 0003 404	Motor		1
					72	951 0064 702	Chassis		1
1	—	CD door cap			73	951 0066 603	Slide gear (R)		1
2	—	CD door cap base			74	951 0065 303	Slide gear bracket (R)		1
3F	951 0061 213	CD door lens Ass'y	Ref. No.1+2+3+8+9+44	1	△ 75	951 0060 515	Toroidal trans.	for E1H	1
3	—	CD door lens			△ 75	951 0060 528	Toroidal trans.	for E3	1
5	—	Partition plate			76	951 0066 807	Handle		1
6	—	Speaker cloth			77	951 0064 304	Cord bush bracket	for E3	1
7F	951 0059 403	Speaker grille (L) Ass'y	Ref. No.5+6+7	1	77A	951 0071 203	Safety cover	for E1H	1
7		Speaker grille (L)			92	951 0065 808	Rear	for E3	1
8	—	CD door plate			92	951 0065 811	Rear	for E1H	1
11	951 0065 109	CD door bracket		1	95	951 0064 100	Rubber foot		4
12	951 0061 404	Display lens		1	96	951 0064 401	CD bracket (L-B)		1
13F	951 0059 500	Speaker grille (R) Ass'y	Ref. No.5+6+13	1	98	146 2218 002	MD door	for E1H	1
13	—	Speaker grille (R)			99	463 0937 002	Door spring	for E1H	1
16	951 0058 705	Remote lens		1	100	951 0058 909	Power knob		1
17	951 0066 001	Speaker cover (R)		1	△ 101	951 0071 300	AC cord	for E3	1
20	951 0059 306	Front panel	for E1H	1	101A	951 0034 402	Safety cover	for E1H	1
20	951 0059 319	Front panel	for E3	1	102	421 0618 000	Pulley		1
21	951 0059 209	MD open/close knob frame	for E1H	1	102A	445 0056 008	Cord bush	for E3	1
23	951 0058 909	CD open/close knob		1	104	304 0422 001	Tweeter		2
28	951 0059 102	Function knob	for E1H	1	105	302 0168 000	Woofer		2
28	951 0059 115	Function knob	for E3	1	106	462 0168 001	CD cushion damper B (GN)		2
29	951 0058 802	Volume knob		2	107	951 9001 504	Metal washer d3.3x12.1x1		1
30	951 0071 106	Cover sheet		2	109	951 0071 407	CD support cushion		4
31	951 0065 905	Speaker cover (L)		1	★ 131	951 0071 504	Under plate	for E3	1
33	951 0065 206	Slide gear bracket (L)		1	★ 132	951 0071 601	PVC sheet		1
34	951 0066 506	Slide gear (L)		1	★ 134	951 9003 926	Carbon film 10 kohm 1/8W		1
36	951 0064 906	Slide (L) Ass'y		1	★ 135	951 0071 708	Ferrite clamp		1
38	951 0034 509	Slide spring plate		2	★ 137	415 0295 004	PVC tube (L80)	for E1H	1
39	951 9001 410	3 E ring		2	★ 138	—	Cable tie	for E1H	15
40	951 0066 108	Driver gear (L)		1	★ 138	—	Cable tie	for E3	16
42	951 0064 605	CD bracket (U)		1	★ 139	—	Soldering lug		2
42A	337 0104 002	CD mecha		1	★ 140	—	Soldering lug	for E1H	5
43	951 0064 508	CD bracket (L-A)		1	★ 140	—	Soldering lug	for E3	6

Ref. No.	Part No.	Part Name	Remarks	Q'ty	Ref. No.	Part No.	Part Name	Remarks	Q'ty
★ 142	951 9003 900	UL PVC tube (L12)		1	SCREWS				
★ 143	951 9003 913	UL PVC tube (L15)		1	4	951 9002 532	Hexagon socket screw 4x5		4
★ 144	951 9003 913	UL PVC tube (L10)	for E3	1	9	—	Screw 2.6x5 CFTS(B)		
★ 146	951 9003 942	UL tube (L165)	for E3	1	10	951 9002 290	Screw 1.4x7 CFTS(P)		4
★ 147	951 0071 805	Rubber sheet	for E1H	1	15	473 7501 001	Screw 3x10 CBTS(P)	for E3	38
★ 148	951 0033 704	Closed end connector	for E3	3	15	473 7501 001	Screw 3x10 CBTS(P)	for E1H	37
★ 149	951 0071 902	Support bracket	for E3	1	15A	951 9002 105	Screw 3x12 CBTS(P)		4
★ 150	951 0033 801	Resistor 2.2 Mohm 1/2W	for E3	1	19	473 7500 015	Screw 3x8 CBTS(P)	for E1H	38
★ 151	951 0067 107	Bush		2	19	473 7500 015	Screw 3x8 CBTS(P)	for E3	35
★ 152	951 9001 300	Collar		2	19A	473 7002 018	Screw 3x8 CBTS(S)-Z	for E1H	4
★ 161	—	Lead BK L=50		1	27	951 9002 558	Screw 2x6 CRTS(P)		8
★ 162	951 0072 008	4P PH wire Ass'y L=320/400		1	32	951 9001 067	Screw 2x8 CRTS(B)		4
★ 163	951 0072 105	4P PH wire Ass'y L=520/600		1	35	951 9001 229	Screw 2x5 CRTS(S)		4
★ 164	—	Lead BK L=250		1	37	951 9001 287	Screw 1.4x6 CBTS(P)		8
★ 165	951 0072 202	6P PH wire Ass'y L=80/150/250		1	47	951 9002 561	Screw 3x18 CRTS(S)		2
★ 166	951 0067 903	6P MX-EH wire Ass'y L=180		1	60	473 7505 007	Screw 2.6x8 CBTS(P)-Z	for E3	3
★ 167	951 0018 907	16P FFC cable		1	60	473 7505 007	Screw 2.6x8 CBTS(P)-Z	for E1H	5
★ 168	—	Lead BK L=170	for E3	1	65	951 9002 529	Screw 6x44 CPS		1
★ 181	513 2253 005	China label (B)	for E1H	1	70	951 9001 054	Screw 2.6x5 CBS-B		2
★ 182	951 0035 621	Laser caution label (class 1)		1	83	473 7002 018	Screw 3x8 CBTS(S)-Z	for E3	2
★ 183	951 0035 634	Caution label		1	83	473 7002 018	Screw 3x8 CBTS(S)-Z	for E1H	4
★ 184	951 0035 100	Dolby label	for E1H	1	85	473 8079 008	Screw 3x30 CBTS(P)		14
★ 185	951 0035 003	Voltage label	for E1H	1	97	473 7005 002	Screw 3x10 CBTS(S)-Z		4
★ 186	951 0035 207	Insulation label	for E1H	1	103	951 9003 861	Screw 2x8 CRTS(P) W		1
★ 187	951 0072 312	Rating label	for E1H	1	108	951 9003 874	Screw 2x4 CFTS(S)		8
★ 187	513 3722 001	Rating sheet	for E3	1	110	951 9003 887	Screw 3x8 CRTS(P)		2
★ 188	—	Date code label	for E3	1	111	473 7500 044	Screw 3x8 CBTS(P)-B	for E3	3
★ 189	513 3732 004	Manufactured label	for E3	1	111	473 7500 044	Screw 3x8 CBTS(P)-B	for E1H	5
★ 190	513 3565 006	Caution label (A)		1	112	471 3301 018	Screw 3x8 CBS-Z	for E1H	4
★ 191	513 3566 005	Caution label (B)		1					
★ 194	951 0072 503	Fuse caution label	for E3	1					
★ 195	951 0072 600	ICP caution label	for E3	1					
★ 196	951 0072 707	Resister label	for E3	1					

EXPLODED VIEW OF MD MECHANISM

1

2

3

4

(Hong Kong model)

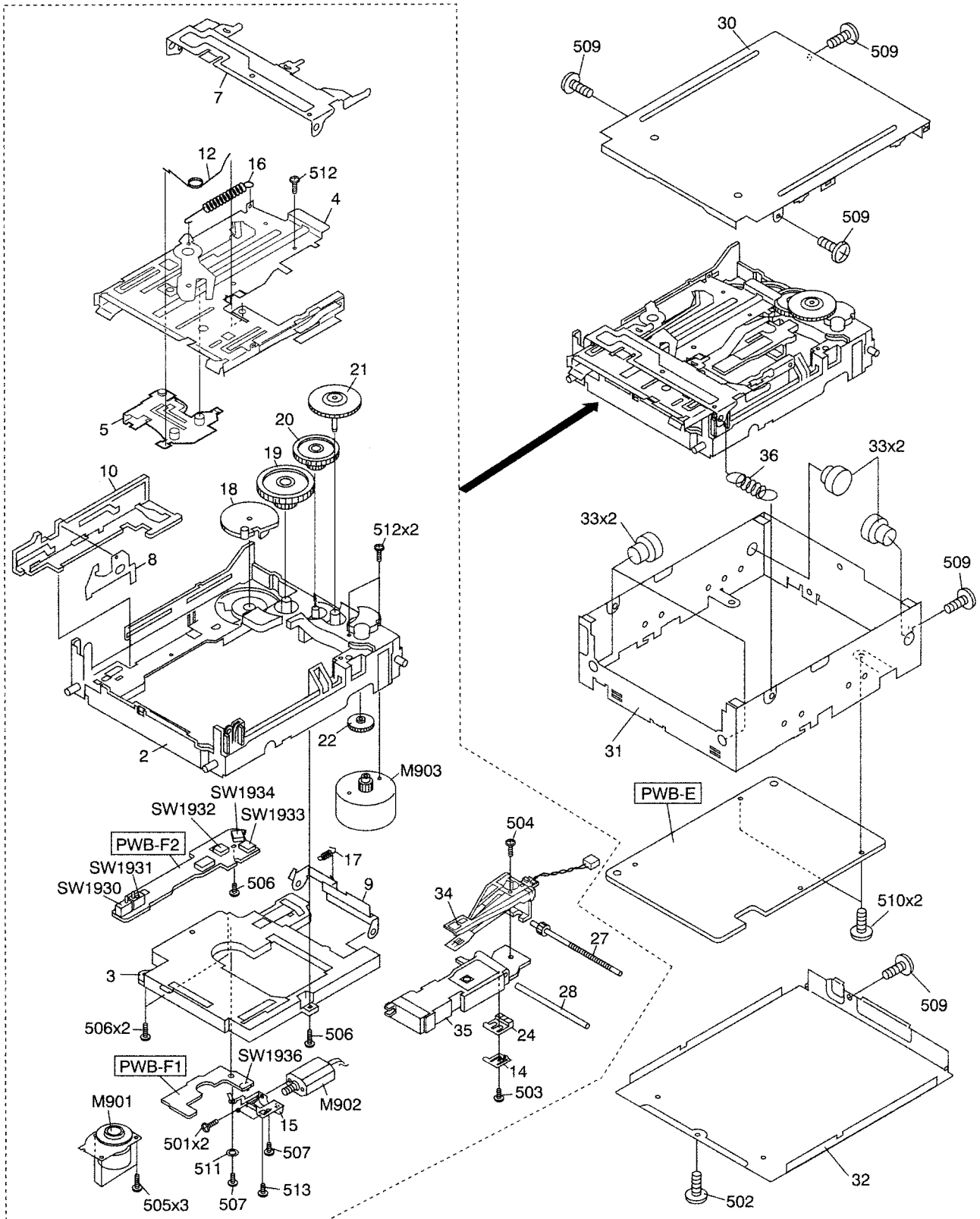
A

B

C

D

E



PARTS LIST OF MD MECHANISM (For Hong Kong model)

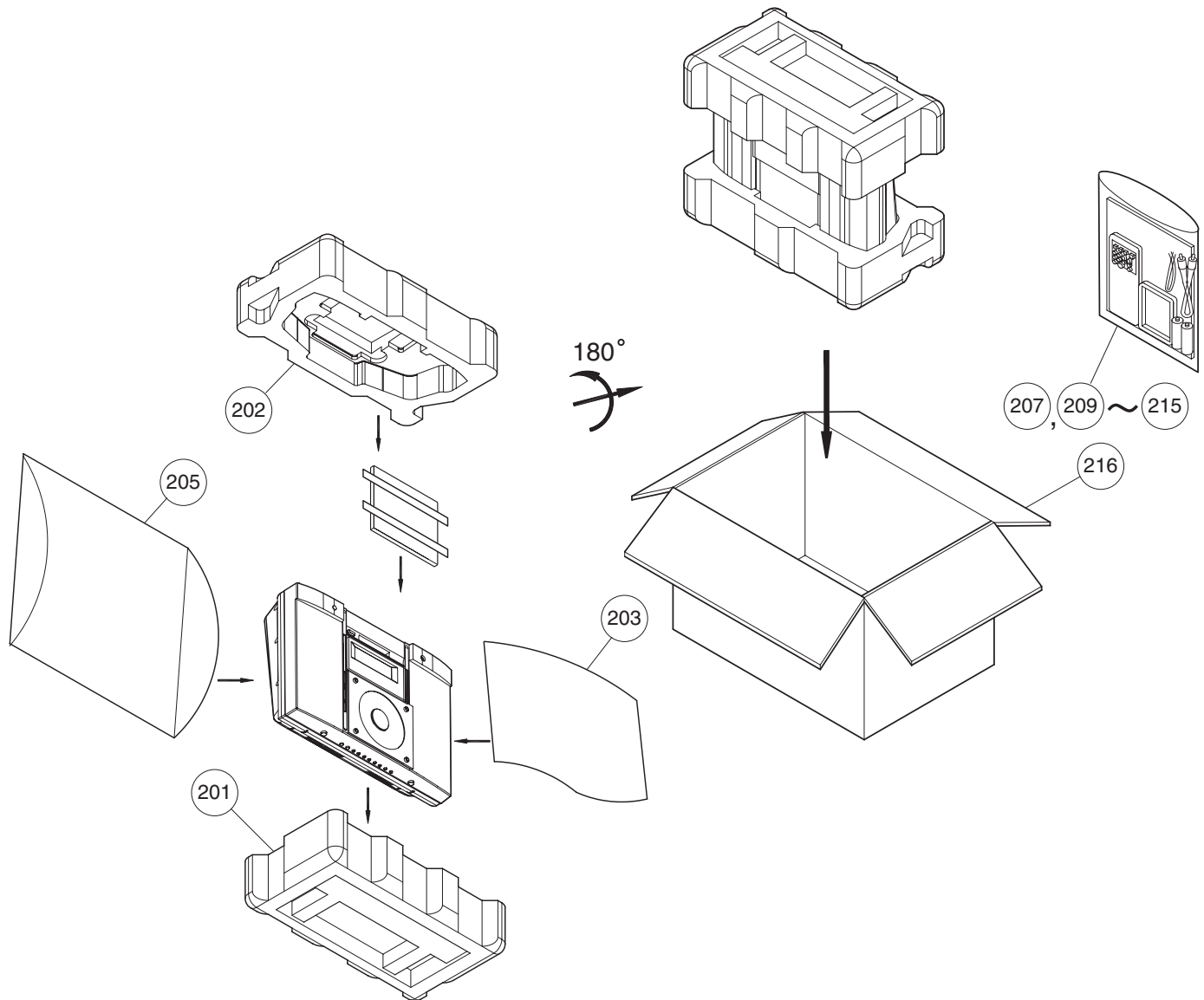
Ref. No.	Part No.	Part Name	Remarks	Q'ty
2	937 0246 207	Drive Chassis (A)		1
3	937 0246 304	Drive Chassis (B)		1
4	937 0279 300	Cartridge Holder Ass'y		1
5	937 0247 400	Slider Lever Ass'y		1
7	937 0247 002	Arm,Holder		1
8	937 0247 109	Plate,Switch		1
9	937 0279 407	Arm,Head Up Shift		1
10	937 0247 303	Lever,Cam Plate		1
12	937 0247 604	Spring,Loading		1
14	937 0247 701	Spring,Grip		1
15	937 0247 808	Spring,Shaft		1
16	937 0247 905	Spring,Loading Arm		1
17	937 0248 001	Spring,Shaft Arm		1
18	937 0248 205	Gear,Loading (A)		1
19	937 0248 302	Gear,Middle (A)		1
20	937 0248 409	Gear,Middle (B)		1
21	937 0248 506	Gear,Middle (C)		1
22	937 0248 603	Gear,Middle (D)		1
24	937 0248 700	Rack,Grip		1
27	937 0248 807	Drive Shaft Ass'y		1
28	937 0248 904	Shaft,Pickup Slide		1
30	937 0249 107	Cover,Shield,Top		1
31	937 0249 301	Cover,Shield,Side		1
32	937 0249 204	Cover,Shield,Bottom		1
33	937 0249 408	Cushion,Shield Cover		4
34	937 0259 605	Magnetic Head		1
35	937 0260 102	MD Pickup Unit Ass'y		1
36	937 0248 108	Spring,Groud		1
501	937 9916 127	Screw, $\phi 1.4 \times 1.5\text{mm}$		2
502	937 9961 156	Screw, $\phi 2 \times 2\text{mm}$		1
503	937 0105 953	Screw, $\phi 1.4 \times 2.5\text{mm}$		1
504	937 0161 900	Screw, $\phi 1.7 \times 5\text{mm}$		1
505	937 9961 130	Screw, $\phi 1.4 \times 3\text{mm}$		3
506	937 9961 143	Screw, $\phi 1.7 \times 6\text{mm}$		4
507	937 9961 169	Screw, $\phi 1.4 \times 4.5\text{mm}$		2
509	937 9961 172	Screw, $\phi 2 \times 3\text{mm}$		5
510	937 0163 500	Screw, $\phi 1.7 \times 3\text{mm}$		2
511	937 0107 304	Screw, $\phi 1.4 \times 0.5\text{mm}$		1
512	937 0161 609	Screw, $\phi 1.7 \times 3\text{mm}$		3
513	937 9961 185	Screw, $\phi 1.4 \times 5\text{mm}$		1
M901	937 0260 416	MD Spindle Motor Ass'y		1
M902	937 0260 306	MD Sled Motor Ass'y		1
M903	937 0260 209	MD Loading Motor Ass'y		1
SW1930	937 0254 901	Switch,Push Type [Write Pro]		1
SW1931	937 0255 007	Switch,Push Type [Disc Media]		1
SW1932	937 0254 804	Switch,Push Type [Loading]		1
SW1933	937 0254 804	Switch,Push Type [Record]		1
SW1934	937 0254 804	Switch,Push Type [Play]		1
SW1936	937 0152 207	Switch,Push Type [Lead in]		1
PWB-E	937 0269 213	MD Main P.W.B. Assembly		1

ADDEMDUM PARTS LIST OF MD MECHANISM MAIN P.W.B. UNIT ASS'Y (MDM08AD) (For Hong Kong model)

Note: All parts, except for the following, are the same that of used of DMD-M50(MDM08A).

Ref. No.	Part No.	Part Name	Remarks	
SEMICONDUCTORS GROUP				
Q1702	937 0214 006	Transistor 2SA1162 G	chg	
Q1801	937 0214 006	Transistor 2SA1162 G	chg	
RESISTORS GROUP				
R1551-1553	937 9959 207	Carbon chip 0 ohm 1/16W	add	
R1561	937 9961 444	Carbon chip 47 kohm 1/16W	add	
OTHER PARTS GROUP				Q'ty
CN1502	937 0250 303	4P connector base	add	1
CW1502	937 0252 204	4P shield cable	add	1
L1551,1552	937 0214 200	Coil 0.47uH	add	1
L1553	937 9955 201	Carbon chip 0 ohm 1/10W	add	1
L1554	937 0214 200	Coil 0.47uH	add	1

PACKING VIEW



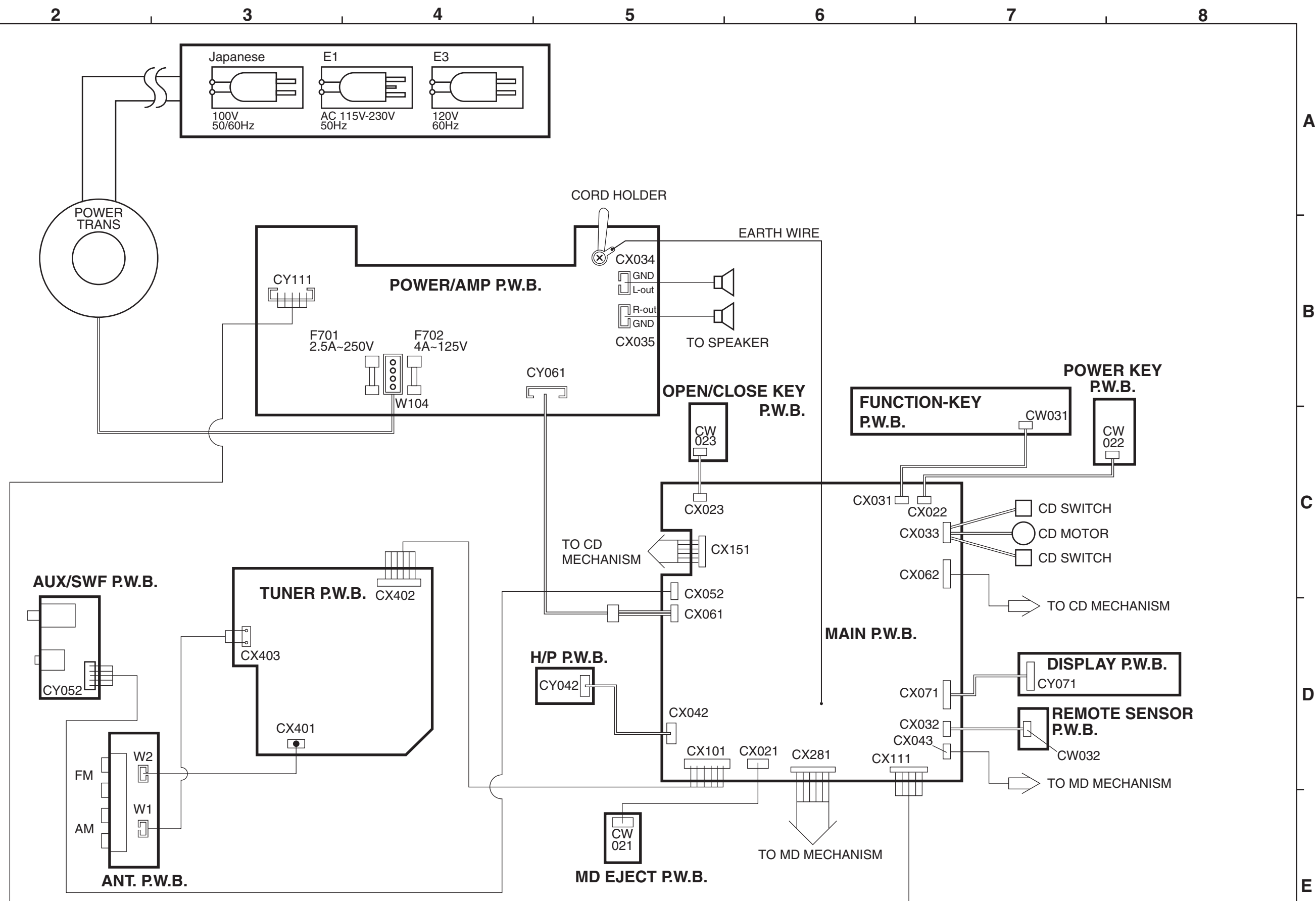
Note : The symbols in the column "Remarks" indicate the following destinations.

E1H : Hong Kong model
E3 : U.S.A. & Canada model

PARTS LIST OF PACKING & ACCESSORIES

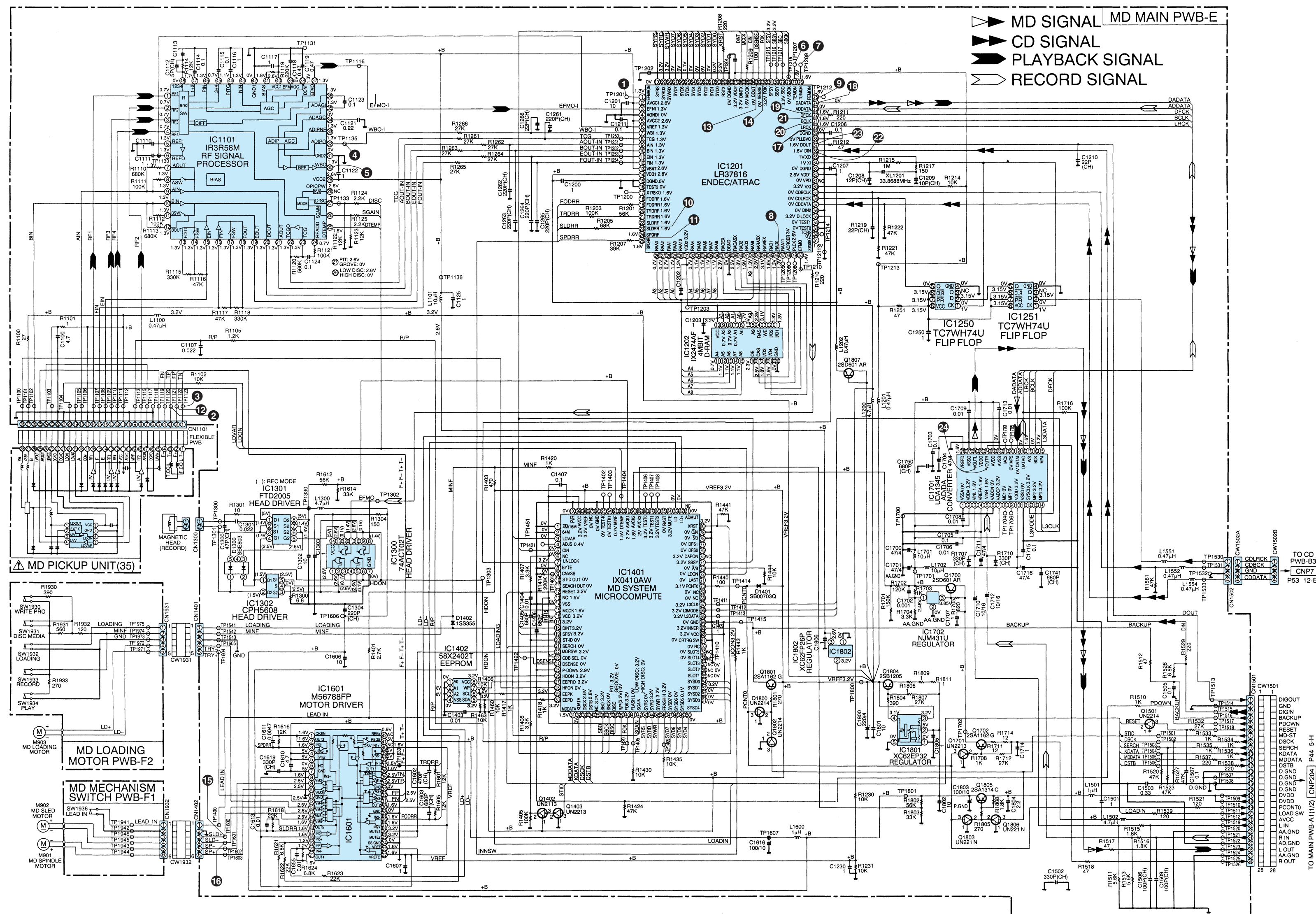
Ref. No.	Part No.	Part Name	Remarks	Q'ty	Ref. No.	Part No.	Part Name	Remarks	Q'ty
201	951 0058 200	Top cushion		1	213	951 0058 022	Remote controller RC-911	for E3	1
202	951 0058 307	Bottom cushion		1	214	—	Battery (R6P/AA)		2
203	951 0007 604	Poly. Sheet		1	215	951 0058 501	FM antenna		1
205	951 0007 400	Poly. Bag	for set	1	216	951 0058 129	Carton case	for E1H	1
★ 206	951 0007 507	Poly. Bag	for AC cord	1	216	951 0058 132	Carton case	for E3	1
▲ ★ 207	951 0072 901	AC cord	for E1H	1	★ 217	515 0690 404	DEL warranty home	for E3	1
★ 208	515 8030 066	Preset label	for E1H AC cord	1	★ 218	517 1433 077	UPC label	for E3	1
209	951 0007 303	Poly. Bag	for accessory	1	★ 219	—	Control card	for E1H	1
210	511 3845 005	Instruction manual	for E1H	1	★ 219	—	Control card	for E3	1
210	511 3866 000	Instruction manual	for E3	1	★ 220	—	Lot serial label	for E1H	1
211	515 0867 101	Service station list (EX)		1	★ 220	—	Lot serial label	for E3	1
212	951 0044 201	AM loop antenna		1	★ 222	513 3726 007	Origin label	for E1H	1
213	951 0058 019	Remote controller RC-910	for E1H	1	★ 223	513 3723 000	CUL label	for E3	1

WIRING DIAGRAM



(There is no MD section in the U.S.A. and Canada model.)





NOTICE

ALL RESISTANCE VALUES IN OHM. K=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT
CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR
NOTICE.

CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

NOTICE.

WARNING

Parts marked with this symbol have critical characteristics. Use ONLY replacement parts recommended by the manufacture.

CAUTION:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power card is less than 460kohms, the unit is defective.

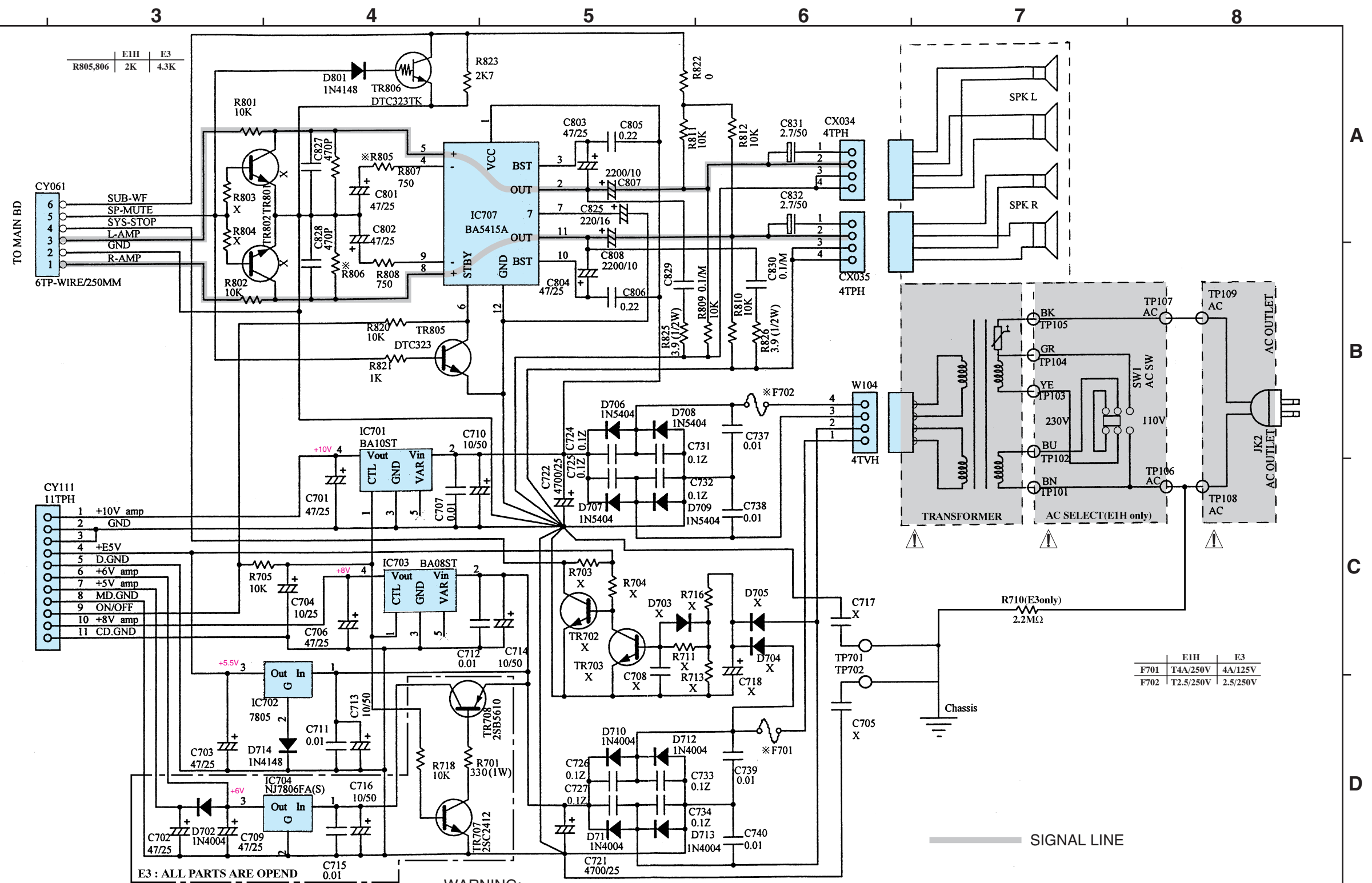
WARNING

WARNING
DO NOT return the unit to the customer until the problem is located and corrected.

①~②④ correspond to the waveform numbers shown in pages 36 to 37.

SCHEMATIC DIAGRAMS (2/5)
MD MAIN P.W.B. (Hong Kong model)

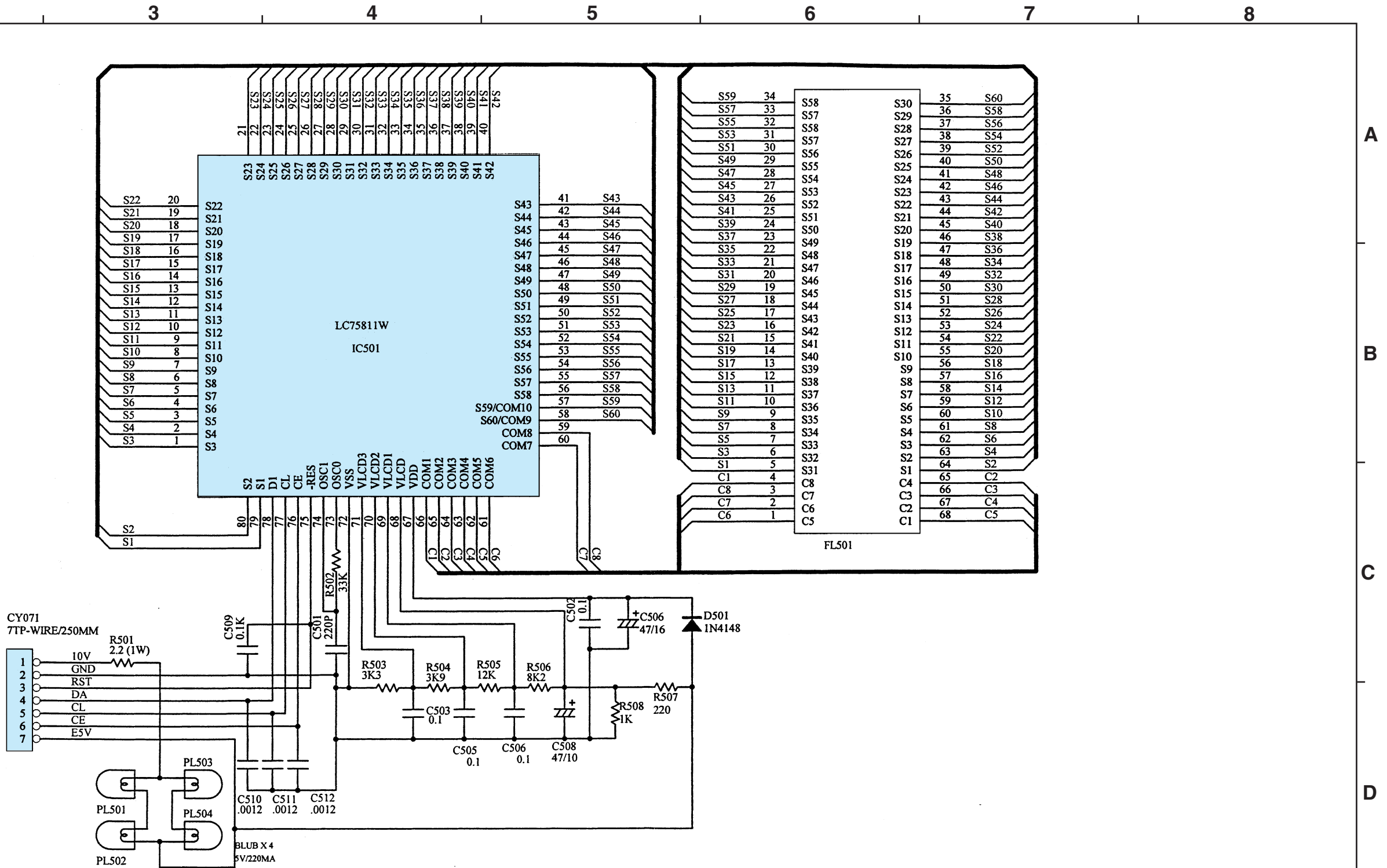
SCHEMATIC DIAGRAM (3/5)



NOTICE

ALL RESISTANCE VALUES IN OHM. k=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT
CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR
NOTICE.

SCHEMATIC DIAGRAM (4/5)



NOTICE
ALL RESISTANCE VALUES IN OHM. k=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASUERD AT MO SIGNAL INPUT
CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR
NOTICE.

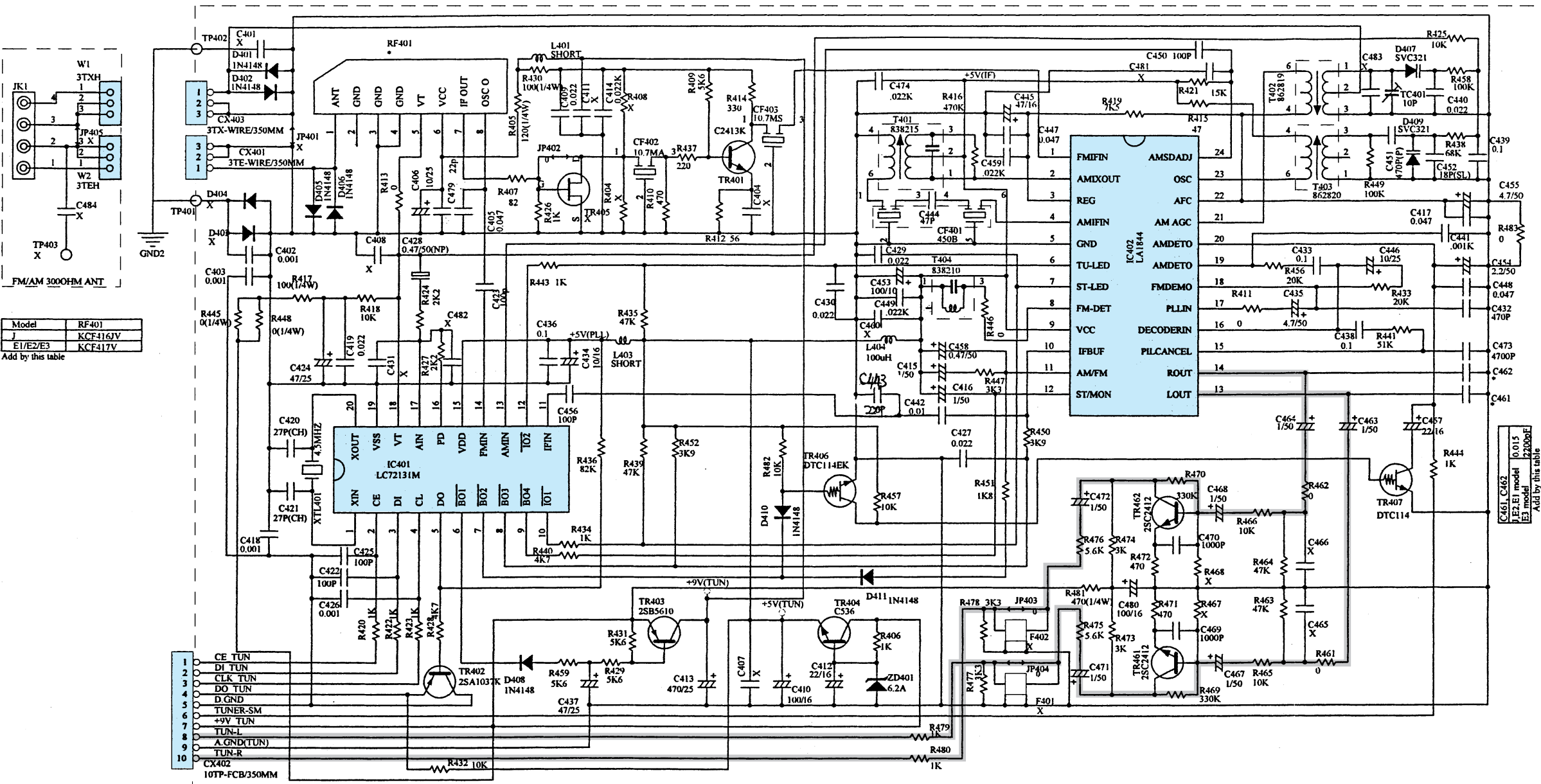
WARNING:
Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacture.

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a
leakage current check or (2) a line to chassis resistance check. If the leakage
current exceeds 0.5 milliamps, or if the resistance from chassis to either side
of the power card is less than 460kohms, the unit is defective.

WARNING:
DO NOT return the unit to the customer until the problem is located and
corrected.

SCHEMATIC DIAGRAM (4/5)
DISPLAY P.W.B.

SCHEMATIC DIAGRAM (5/5)



Model	RF401
J	KCF416JV
E1/E2/E3	KCF417V

Add by this table

C461, C462	0.015
E1/E2/E3 model	LA203E

Add by this table

NOTICE

ALL RESISTANCE VALUES IN OHM. k=1,000 OHM M=1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD. P=MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT
CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR
NOTICE.

WARNING:

Parts marked with this symbol  have critical characteristics.
Use ONLY replacement parts recommended by the manufacture.

CAUTION:

Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line to chassis resistance check. If the leakage current exceeds 0.5 milliamps, or if the resistance from chassis to either side of the power card is less than 460kohms, the unit is defective.

WARNING:

DO NOT return the unit to the customer until the problem is located and corrected.

 SIGNAL LINE

SCHEMATIC DIAGRAM (5/5)
TUNER P.W.B.